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TACTICS *and* TECHNIQUE *of* CAVALRY

BASIC

2nd EDITION

A Textbook of Basic Cavalry Training

(With Questions for Self-Examination)

Produced for

THE CAVALRY JOURNAL

By

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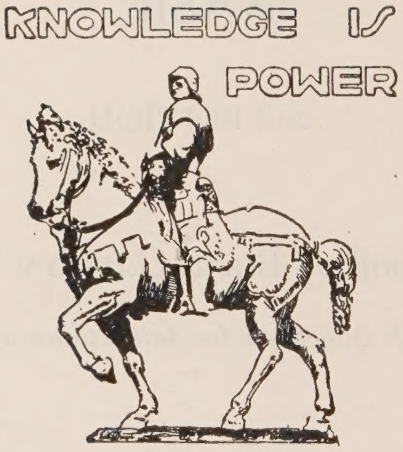

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FOREWORD

THE CAVALRY JOURNAL has performed, in cooperation with the publishers, a real service by producing this excellent volume for the use of all components of the Army of the United States. The text conforms accurately to the prescribed standards, and to official regulations on the subjects covered. The experiences of over two hundred instructors have been embodied in this text. About sixty officers, each an expert in one or more lines, have participated in the actual production of the book. It fills a long felt want.

The initial edition was carefully prepared, including its many excellent illustrations. This second edition has been painstakingly revised in the light of comments and suggestions received from many users throughout the service. However, further improvement is still possible. THE CAVALRY JOURNAL and the publishers will welcome suggestions for improvement, in order that each annual revision may keep the text in step with the most progressive methods of instruction. The service is entitled to the best text book that our cooperative efforts can provide.

I am pleased to record my indorsement of this book and to commend it to all officers of the Cavalry.

GUY V. HENRY,
Major General,
Chief of Cavalry.

TACTICS AND TECHNIQUE OF CAVALRY

Basic

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THE ARMY OF THE UNITED STATES

THE MILITARY POLICY OF THE UNITED STATES.

In the preamble to the Constitution of the United States we find the basis of our policy of national defense. "To form a more perfect union, establish justice, insure domestic tranquillity, provide for the common defense, promote the general welfare, and secure the blessings of liberty," it is necessary that we maintain an army and a navy. Our defensive policy is clearly and succinctly set forth in the following statement by our Secretary of War (Col. Patrick J. Hurley): "The United States does not desire to transgress the right of others; but means to place itself in a position where its own rights will not be transgressed. Expressed briefly, the idea of maintaining the agencies of National Defense is twofold: To prevent war, in so far as possible, by making available to the Chief Executive a force sufficiently strong to deter other nations from any hasty, ill-considered, unreasonable inclination to adopt an aggressive, over-bearing and unjust attitude towards us; to diminish the costs of war in men and money by making any wars into which we may be forced in defense of our national existence, both short and successful. There is nothing aggressive in this policy; nothing which is out of harmony with our long established custom of exercising a wise and sympathetic spirit in dealing with matters which involve other nations. The Naval Limitations, the Kellogg Treaties, the Geneva Conferences, are conclusive evidence of our willingness to further the cause of world peace to any extent short of imperiling our liberty."

The military policy of the United States has been, and is, primarily defensive. The advisability of adopting and consistently following a sound military policy in times of peace is apparent; however, it took many years of sustained effort on the part of our military leaders to secure the adoption of our present policy. This policy is set forth in the National Defense Act of June 3, 1916, and subsequent amendments. It devolves upon army officers to explain and apply its provisions. For this reason, if for no other, all officers should have a thorough knowledge of our present military policy.

The National Defense Act.

Some of the more important provisions of the National Defense Act, as amended to date, are briefly:—

Purpose. To give the country a definite military policy.

Three Components of the Army. Regular Army, National Guard (when called into Federal service), and Organized Reserves.

Mobilization of Manpower. Territorial subdivisions (nine corps areas grouped in three army areas), based on population, with troops and administrative agencies for mobilization.

Civilian Training. Through Reserve Officers' Training Corps and Citizens' Military Training Camps.

Mobilization of Industry. Providing means for doing this important work, as far as possible, in time of peace.

Chiefs of Branches. For each combat arm and supply service.

Officers. In Regular Army, 12,000 total; promotion to include grade of colonel by seniority on a single list, except for Medical Corps and Chaplain's Corps; elimination of unfit through "B—Board."

General Staff Corps. Detailed from selected list of eligible officers, for duty in War Department and with troops.

Education. Thorough system.

The national defense act, as it stands today, provides for a skeleton peacetime establishment, and for rapid mobilization of the nation's military power in war time. We now have a sound military policy, and it is our duty to see that it works.

THE WAR DEPARTMENT.

The War Department was created by Congress to assist the President in the execution of his military duties. It is responsible to the President, and he to the people, for the efficient execution of laws enacted by Congress on military matters. For this purpose it may make plans and develop policies. Congress, however, decides what the military policy shall be and how much money shall be spent on the military establishment.

The War Department organizes, trains, and maintains the army at all times in accordance with conditions defined by Congress; and in addition, conducts certain non-military activities. The task is a large one. It involves the management of more than 200,000 officers, enlisted men, and civilian employees in the Regular Army; and over 300,000 members of the National Guard and Organized Reserves. Military personnel are engaged in activities at civilian schools, training camps, and numerous varied enterprises in all parts of the world. A well-designed organization is required to administer this complicated service. The present arrangement of this organization, and the distribution of duties among the more important divisions and branches, are described in the following pages.

The Secretary of War.

The Secretary of War, as the President's representative, controls all the work of the War Department. He reserves to himself final action upon:

Military Matters:

Cases involving questions of general policy, the establishment or reversal of precedents, and other matters of special importance.

Organization of the army and plans for national defense, including permanent fortifications.

Estimates for all appropriations pertaining to the War Department.

The apportionment and allotment of appropriations.

Cases involving important policy with reference to the appointment, promotion, assignment, and discipline both of commissioned officers and enlisted men.

Cases involving the establishment or abandonment of military posts, camps, and stations, and other important changes in their status.

Policies relative to the training and the educational and recreational activities of the army.

Recommendations to Congress for legislation.

Important correspondence with the heads of other executive departments.

Correspondence with the President.

The award of medals.

Important matters relating to the transportation activities of the army.

Nonmilitary Matters:

Insular affairs.

The Panama Canal.

Inland and coastwise waterways.

Important matters relating to river and harbor improvements and civil works.

The Assistant Secretary of War.

The Secretary of War is assisted by the Assistant Secretary of War and the Assistant Secretary of War (Air).

The statutory duties of the Assistant Secretary of war are, in general terms:

The procurement of all military supplies.

The mobilization of material and industrial organizations essential for wartime needs.

The statutory duties of the Assistant Secretary of War (Air) are, in general terms:

"To aid the Secretary in fostering military aeronautics."

To perform such functions (for air) as the Secretary may direct.

To serve as a member of the Patents and Design Board.

The War Department General Staff.

The War Department General Staff assists the Secretary of War in all military matters. It prepares plans for national defense and for the use of military forces for that purpose, both separately and in conjunction with the naval forces. It plans for the mobilization of the nation's manpower and industries in an emergency. It investigates and reports on all questions that affect the efficiency of the army and its preparation for military operations.

The Chief of Staff is at the head of the War Department General Staff. As the agent of the Secretary of War, he issues orders to insure the harmonious execution of plans that have been approved.

The Deputy Chief of Staff assists the Chief of Staff, acts for him in his absence, and handles the routine work of the War Department General Staff. He supervises the activities of the divisions of the War Department General Staff. Each of these five divisions is presided over by an Assistant Chief of Staff.

The Personnel Division, known as G-1, supervises all activities of the War Department General Staff which concern the personnel of the army as individuals, including procurement, classification, assignment, promotion, transfer, retirement, and discharge, in peace or in war. It supervises such matters as army regulations, uniform regulations, religious activities, recreational work, the treatment of enemy aliens, of conscientious objectors or prisoners of war. Measures for conserving man power and many other plans and policies which concern the personnel of the army are in its charge.

The Military Intelligence Division, known as G-2, is concerned with those duties of the War Department General Staff which relate to the collection of military information, estimation of its value, and the distribution of knowledge gained from it. It supervises such activities as the making and distributing of military maps and surveys, the keeping of the General Staff map and photograph collection; the use of codes and ciphers; censorship; connection with other intelligence agencies of the Government, and with the duly accredited foreign military attaches and missions.

The Operations and Training Division, known as G-3, supervises all those duties of the War Department General Staff which relate to the organization of all branches of the army, the distribution and training, including the education and vocational education of the Army; special service schools, general service schools, and army correspondence schools; General Staff Manuals, Field Service Regulations, and Training Regulations; military training in civilian institutions and civilian training camps; movements of troops; and the military police.

The Supply Division, known as G-4, is concerned with plans relating to the supply of the army. It makes these plans in sufficient detail so that the supply branches of the army will be able to accomplish their work with full knowledge of the changing military needs and the limitations of appropriations or procurement possibilities. Its decisions relate to the military supplies alone; the Assistant Secretary of War makes the decisions relating to the business or industrial questions on supplies. It is also charged with making such plans and policies and with the supervision of such activities as concern the distribution, storage, and issue of supplies; transportation by land and water, including the facilities at the points of embarkation; tables of army equipment; inventions; hospitaliza-

tion of men and animals; property responsibility. It must also make plans for the requirements in real estate and the construction, maintenance, repair, etc., of all buildings in connection with the training and housing of troops and with the storage, distribution, and issue of supplies.

The War Plans Division, known as WPD, is charged, in general, with those duties of the War Department General Staff which relate to the formulation of plans for the use in the theater of war of the military forces, separately or in conjunction with naval forces, in the national defense. It is specifically charged with the preparation of plans and policies and the supervision of activities concerning the location and armament of coast and land fortifications; the estimation of forces required and times at which they may be needed under the various possible conditions necessitating the use of troops in the national defense; and the actual operations in the theater of war.

The Advisory Council on Legislation is charged with the duty of studying all proposed legislation for the army. Its purpose is to promote economy and to insure that requests for legislation are representative of the needs of the whole Army. It then makes its recommendations to the Secretary of War. The council is composed of the Deputy Chief of Staff, the Assistant Chiefs of Staff, an officer designated by the Judge Advocate General and the budget officer for the War Department.

The War Council consists of the Secretary of War, the Assistant Secretary of War, the General of the Armies, and the Chief of Staff. It meets from time to time at the direction of the Secretary of War to consider policies which affect both the military and munitions problems of the War Department.

The staff organization as given above is concerned entirely with the formulating of plans and policies, and with serving the army in an advisory capacity. It acts as the agent of the Secretary of War in issuing orders for the carrying out of policies.

The War Department Services.

The business of actually providing for the needs of the army is performed by the services of the department's organization. These are given below with a general statement of the duties of each.

The Adjutant General's Department is charged with the duty of recording and with communicating to the troops and individuals in the military service all orders, instructions, and regulations issued by the secretary through the chief of staff. The whole military establishment depends upon the accuracy and the availability of these records, and upon the promptness of their delivery.

The Inspector General's Department is charged with the inspection of activities under the War Department, its chief function being to keep the higher commanders constantly informed as to the state of discipline, instruction, supply, morale, money accounts, and of matters affecting the efficiency of the army. It investigates acts, incidents, transactions and complaints involving the personnel of the army, reports the facts concerning same, and makes recommendations for appropriate adjustments, corrections, and disciplinary action.

The Judge Advocate General's Department, in addition to its specific statutory duties in connection with the administration of military justice, is called upon to give legal advice concerning the correctness of military administration, matters affecting the rights and mutual relationship of the personnel of the army, and the financial, contractual, and other business affairs of the War Department and the army.

The Quartermaster Corps feeds, clothes, houses, and transports the soldiers. It furnishes all public animals employed in the service of the army, the forage consumed by them, wagons, and all articles necessary for their use. It furnishes camp and garrison equipage, barracks, storehouses, and other buildings; constructs and repairs roads, some railways, certain permanent bridges, builds and

charters ships, boats, docks, and wharves needed for military purposes; supplies, subsistence for enlisted men and others entitled thereto; supplies articles for authorized sales and issues; furnishes lists of articles authorized to be kept for sale; gives instructions for procuring, distributing, issuing, selling, and accounting for all quartermaster and subsistence supplies; and attends to all matters connected with military operations which are not expressly assigned to some other bureau of the War Department.

The Finance Department is charged with the disbursement of and accounting for all funds of the War Department, and with the audit of property accounts, and of World War contracts. The Chief of Finance as budget officer for the War Department revises and submits to the Bureau of the Budget all estimates for funds required by the War Department.

The Medical Department is responsible for the health of the army. Under its inspection only the healthy man is enlisted. It endeavors to keep him fit during his enlistment, and sees, when he is discharged from the army, that he is in as nearly normal health as modern science can make him. To this end the department is constantly engaged in doing research work, in order to provide the best that medical knowledge can give. The department also has charge of the veterinary service for the army animals.

The Ordnance Department provides the munitions for the army, such as ammunition, artillery, small firearms, explosives, grenades, machine guns, periscopes, railway mounts, tanks, tractors, special trucks, and many other military materials. It supervises the manufacture of offensive and defensive arms and apparatus.

The Chemical Warfare Service has charge of the investigation, development, manufacture, or procurement and supply to the army, of all smoke and incendiary materials, all toxic gases, and all gas-defense appliances. It conducts stations for experimenting in these materials. It supervises the training of the army in chemical warfare, and organizes and operates special gas troops.

The Chaplains minister to the spiritual welfare of the soldier. The law provides in general that there shall be one chaplain for every twelve hundred officers and enlisted men of the Regular Army.

The Combat Arms.

The combat arms of the army which are served by the above departments are the Infantry, the Cavalry, the Field Artillery, the Coast Artillery, the Air Service, the Engineers, and the Signal Corps.

The Corps of Engineers is organized to serve as a combatant arm, and as a supply service, and to perform the important civil duties of river and harbor improvements. The latter are directed by the civil division in the Office of the Chief of Engineers, supervised and controlled in the field by division engineers, each in charge of a territorial division; and executed by district engineers, each in charge of a territorial district.

The present law does not change our traditional policy of augmenting our Regular Army by citizen soldiers temporarily drawn into service in time of war, but it makes provision for a better-prepared and better-trained army and establishes the framework of it in peace time. As has been stated, this framework is made up of three components—the Regular Army, the National Guard, and the Organized Reserves. Each of these is essential in the building of the whole army. The functions of each in time of peace are defined in the statutes.

The Three Components of the Army.

The Regular Army is maintained to furnish the necessary protection of our frontiers in peace time and to garrison our oversea possessions. It provides the overhead administration for the citizen army and supplies officers to help train the National Guard and the Organized Reserves. It stands as a model war organization and must be ready at all times for immediate use in an emergency.

The National Guard of to-day evolved from the organized militia of earlier days. The defects which warranted criticism of its predecessor have been so thoroughly remedied that it occupies in the present scheme for national defense a position of importance next to that of the Regular Army. The National Guard exists for the local use of the states in time of peace, but in a national emergency it joins with the Regular Army and together they constitute the first line of defense.

The Organized Reserves in time of peace consist of skeleton units made up chiefly of reserve officers, noncommissioned officers, and enlisted specialists who form a mold in which to shape and train the enlisted strength called to duty in an emergency. They represent the last line of organized defense. At the present time the Organized Reserves are composed chiefly of officers who are veterans of the World War. In order that their ranks may not be depleted as time goes on, there have been established several agencies for training young men to fill them.

One agency is the *Reserve Officers' Training Corps,* known as the R. O. T. C., which receives training in various schools and colleges throughout the United States. The Government furnishes officers, enlisted men, materials, and money to carry on the military instruction. Training also is given in some secondary schools, with a small amount of aid from the Government in the way of arms, ammunition, and instructors.

Another agency is the *Citizens' Military Training Camps,* known as the C. M. T. C. These camps are conducted in many parts of the country for a few weeks every summer and give the young men of every community an opportunity to receive military training if they wish it.

Territorial Organization.

For administrative purposes the Continental United States is divided into nine corps areas on the basis of military population. The commanders and officers are assigned in times of peace to the offices they are expected to fill upon mobilization. Each corps area has a general staff modeled after the organization of the War Department general staff with the same divisions except War Plans, and appropriate duties. The scheme of mobilization in an emergency is to provide an army of about 3,000,000 men. Each corps area shall furnish units recruited from its territory, and it has the machinery for furnishing additional units as they are needed. The plan is that each corps area shall furnish at the first call one division of the Regular Army, two divisions of the National Guard, and three divisions of the organized reserves. In war the smaller units are combined to form the larger combat bodies, as divisions, corps, and armies.

In addition to the nine corps areas, there are three departments to administer military affairs outside the continental limits of the United States as follows: Philippine Department, Hawaiian Department, Panama Department. Their organization is similar to that of the corps areas, with such modifications as are necessary for local conditions. The Second Corps Area administers military affairs in Porto Rico.

MANAGEMENT OF THE AMERICAN SOLDIER

By

Major General David C. Shanks, U. S. Army.

Men are the tools of the military profession. Beyond question the management of men is the most important, as well as the most difficult thing that falls to the lot of the line officer. No amount of technical training or of technical knowledge on the part of the line officer can make him truly efficient if he does not possess the power of controlling his men in such a way as to preserve harmony in his organization and bring out the best efforts of those under his control.

In no other profession is the study of men so important as it is in the military profession.

Some Difficulties to Be Overcome.

First in the way of difficulties is the matter of environment. The young American has been bred and born in an atmosphere distinctly non-military. From his earliest youth he has been accustomed to ideas of great individual independence. Distinctly he has been his own boss. In certain sections of the country it is not unlikely that he has had opportunity to absorb prejudices against military training and against the uniform of the army and navy. The average young American has been accustomed to hearing his government freely criticized and perhaps himself has already become an expert critic.

Now the first and most important lesson in the life of every soldier is discipline and obedience. Without discipline military instruction is in vain. One of the most difficult things to instill in the young American soldier is a proper conception of the enormous, the indispensable value of discipline. The American is born in a democratic country where all men are equal and where every man is accustomed to making up his mind as he goes along. Hence it is that many sterling young Americans find the first few months of military training extremely irksome. The requirement of suddenly giving up their own will and rendering prompt and willing obedience to the will of others is not easy; it is especially hard on the young men of our democratic country accustomed to having their own way in everything. Right here is one of the prime causes of desertion. The recruit accustomed to doing as he likes finds the lessons of discipline very trying, and makes up his mind that he will go back to a life rid of such annoyances. For a time he is like a wild animal suddenly taken captive that longs for its former freedom. The first months of a soldier's training are always the most trying. Once the soldier has gotten over the first bumps the bonds of discipline become less galling and the attractive part of the soldier's life begins. It is in these first months of the life of a young soldier that the officer needs to be most careful and most patient.

America is a composite nation embracing many distinct elements. The great national melting pot has not yet made us one homogeneous people with easily distinguished national characteristics. This fact adds greatly to the difficulty of the American officer.

Take the average white American company. It will be composed of men of many nationalities. The Irish, the Swede, the Pole, the Jew, the Italian, and many others will be represented. These men possess widely different characteristics. They cannot all be managed in the same way. In our country all men are equal, but all soldiers are not equal—not by a jugful. The officer who would try to manage the well-meaning Swede by the same means which he would probably have to use in controlling the Bowery tough, would have no success. This

fact, then, that we are a composite people possessing the characteristics of many different peoples adds much to the difficulties of our officers in the management of their men.

Qualifications of Officers.

Of all essential qualties, sound common sense is easily first and foremost; without it, no officer can hope to be successful in the management of men.

Even with sound sense as a foundation there is the greatest difference among officers in respect to their ability to manage men. There are some officers who will never make good with troops, no matter how hard they may try. They lack a certain indefinable, intangible something that spells the difference between success and failure.

I do not mean by this that any officer, however gifted by nature, ever attains full stature except by one means, unceasing observation and unceasing effort. There is a widespread idea that a great leader like Napoleon is the heir to a heaven-born gift that raises him beyond the level of all his contemporaries. But let the truth be known for the encouragement of all who are willing to attain eminence as Napoleon attained his, by hard work. In his youth that which distinguished Napoleon from his fellows was his constant reading, his habit of taking many notes, and his power of application. He himself has said that the power of applying military principles readily and on the spur of the moment came to him by always thinking of them. Success came to Napoleon as it comes to most officers, through constant endeavor.

Treatment of the American Soldier by His Officers.

In the first place, treat the soldier as a man. Treat him as you would yourself like to be treated were you in his place and he in yours. I do not mean by this that the soldier should be coddled—far from it. But you can be exacting, you can require the most punctilious observance of orders and regulations, and yet do it without nagging or irritating the men under your command.

Some officers lack the backbone to require the proper performance of duty on the part of their men, lest it render them unpopular. They are willing to play a namby pamby part because they cannot muster courage to exact from their men a proper performance of duty. Let the young officer examine himself right here. If he cannot muster the moral courage to do his duty he can never expect to train his men to do theirs. Right here is the beginning of inefficiency. Many is the officer I have known and who must himself have known that he lacked the backbone to say *no* when that was the answer which ought to be given.

On the other hand, there is no need to be a martinet. No useful purpose is accomplished by a constant nagging and scolding on the part of the officer.

On a bronze tablet at the main sally port at West Point is the following extract from an address to cadets by Major General John M. Schofield. Superintendent of the U. S. Military Academy, August 11, 1879. It contains much excellent advice.

"The discipline which makes the soldiers of a free country reliable in battle is not to be gained by harsh or tyrannical treatment.

"On the contrary, such treatment is far more likely to destroy than to make an army.

"It is possible to impart instruction and give commands in such a manner and in such a tone of voice as to inspire in the soldier no feeling but an intense desire to obey.

"While the opposite manner and tone of voice cannot fail to excite strong resentment and a desire to disobey.

"The one mode or the other of dealing with subordinates springs from a corresponding spirit in the breast of the commander.

"He who feels the respect which is due to others cannot fail to inspire in them regard for himself.

"While he who feels and hence manifests disrespect toward others, especially his inferiors, cannot fail to inspire hatred against himself."

Inculcating Pride of the Soldier in Himself and in His Record.

Of all influences over mankind few are so powerful and so far reaching as pride. We often hear it said of an individual that "he did not know what fear meant." I do not believe it for a moment. When danger of death is near all men fear it. There are some men, many men, who overcome that fear, and they are rightly called brave; there are other men who succumb to that fear and we dub them cowards. The same man may overcome his fear on one occasion, and on the very next occasion may yield to it.

Now there is no other influence that holds a soldier in the battle line so well as pride. He fears the jeers and the contempt of his companions more than he fears the bullets of the enemy. It is pride in his good name and in his fair reputation that holds him to the mark. A regiment which has once earned a reputation for bravery will stick and fight on to the death because of its pride. Now pride of the soldier in himself and in his reputation is a tremendous asset in the every day management of the soldier, provided the officer knows how to turn it to account. Every normal man has an earnest desire to succeed, and feels a deep interest in winning success. Judicious effort on the part of the officer will build up a feeling of pride in the soldier that will be most useful.

Therefore, the officer ought to be most careful to avoid any act that will tend to destroy the self-respect, the feeling of pride of the soldier in himself and in his record. Never put a young soldier in the guard house for the first time if it is possible to avoid it—not until you are sure that no other course will answer. When you put a soldier in the guard house you run the risk of bringing upon him a feeling of degradation and of discouragement, and you run the greater risk of injuring the great asset, his pride in himself.

Pride of the Soldier in His Organization.

General Sherman once said that an army had a soul as well as a man. This is true, and it is also true that a company has a soul as well as an army. The pride of the soldier in his organization may be made a most useful influence in the ordinary routine administration of a company.

When I was a "youngster," I was serving at a large post at the time of the establishment of the post canteen. Everything connected with the running of it was new; nothing had been worked out. The War Department authorized no stoppages; company commanders were responsible for their own collections, and the subject of these collections caused a good deal of anxiety. There was a general consensus of opinion: to the guard house and the black list with any man who failed to pay. Pay day came and went. There were many failures to pay, likewise many in the guard house. One captain had three men who failed to pay. He called them into the orderly room one at a time. Each man put up a sorrowful story about having spent all his money before he reached the canteen. To each one, the captain made the same reply: "I do not like to have men of my company in the guard house; it hurts the man, and it hurts the company." Then he took from his own pocket the money needed to pay each man's canteen bill, and sent him down to pay it. But it did not stop there. The captain then sought the canteen officer, and learned that the man had paid up. He asked the canteen officer to write him a letter to that effect, and the letter also said that his was the only company at the post which owed nothing. This letter was posted on the company bulletin board. It made a hit. The men of the company thereafter would not stand for any man injuring the good name of the company by non-payment of canteen bills.

Homesickness.

Many recruits have left their homes for the first time. It is not unlikely

that many of them suffer from homesickness, perhaps in an acute form. To the young soldier homesickness is a great trial, and it will take time and grit for him to overcome it.

The judicious officer, alive to the interest of his men, can do much to help overcome the ill effects of this most trying time. Just a few words, *and no more*, to tell the young soldier that a time comes in the life of every man when he must leave his former home, that the strong man grits his teeth and overcomes his lonesome, distressed feeling, and that only the weakling gives way and plays the baby act.

At the same time give the homesick soldier plenty to do. Homesickness feeds on idleness. It is most likely to disappear when the soldier is given such a quantity and variety of work as to keep both body and mind fully occupied.

Writing Home to Relatives.

Many a young soldier forgets to write home, frequently to the distress of his parents. Company commanders often receive anxious letters of inquiry from the parents or other relatives of some of their men. Some officers regard such small matters as a petty detail not of sufficient interest to require their attention, but it is in these small matters that the officer has opportunity to show his really helpful spirit towards his men.

One way to manage this matter is to wait until the company is assembled and then announce *without mentioning any names* that a letter of inquiry has been received from the parents of one man in the company; that every young man ought to feel interest enough in his parents to write to them from time to time, and that any man who fails to take that small trouble should be ashamed of his neglect.

Proper Distribution of Duties.

In our regulations, it is laid down and insisted upon over and over that in all tactical work there must be an allotment to each subordinate of his appropriate duties and non-interference with him so long as he does well. It is a correct principle and works well. It is the means we rely upon to give to the subordinate the opportunity for developing efficiency and confidence in himself. Without this system we could never train the subordinate officers and noncommissioned officers properly to lead their commands. This same system which the drill regulations prescribe for tactical exercises should be insisted upon at all times. There is no other principle more important for the young officer to get clearly fixed in his mind. In many companies the captain and the first sergeant are the whole show. There is no intermediary, and nobody else attempts to exercise any authority. In such organizations the lieutenant assists the captain only when at drill or military exercise. Subordinate noncommissioned officers refer every question to the first sergeant.

Some corporals are never called upon to exercise any authority except on guard or in charge of fatigue parties. At drill they give the commands; "squad, halt" or "follow me;" when the recall sounds their authority ends their duty is done. No one but the captain and the first sergeant is getting any training in the handling of men, because no one else has the opportunity.

When the time comes for a lieutenant or a subordinate noncommissioned officer to step into a more important place requiring the control of men, he has had no experience. The captain who does not give his lieutenant and his subordinate noncommissioned officers anything to do except at drill and military exercise is not training his company as the army regulations require, neither will he get best results.

The squad system is the very soul of company training; it gives to the company commander opportunity to size up his subordinates, to relieve any

who are hopeless, and develops confidence and efficiency in those who need just this kind of work.

In proper sequence, each line sergeant should have under him the squads assigned to his charge. In the supervision of these squads, he should as far as possible, deal with the corporal. The captain should deal with both. In short, every noncommissioned officer should have a job. When anything goes wrong, every man whose business it was to supervise that particular work should be held up, and responsibility for the failure established.

It takes a tactful captain to get the proper work out of his lieutenants. Many are assigned no work at all except at drill or at tactical instruction. There can be but one officer in command of a company, but that is no excuse for letting the lieutenants remain ignorant and go to rust for lack of opportunity to learn their profession. The best training for inexperienced lieutenants will be given by assigning to each in turn certain duties as the captain's representative in the management of the company mess, the daily inspections, office work. One excellent form of training for a lieutenant is to place him in charge of gymnastics, athletic events, and company amusements.

Following out the scheme above outlined and required by the regulations, every officer and every noncommissioned officer will have something to do. The captain will have supervision and control but will exercise it in such a way that all of his subordinates are receiving training of the right kind, a training that will enable the machine to continue to run smoothly even though the captain and the first sergeant should be simultaneously called away.

Criticism.

Undoubtedly one of the greatest handicaps upon efficiency in our army is the tendency upon the part of some of our officers to overmuch criticism. Every American citizen feels at liberty to express his views on any subject that comes up. But not always does criticism, even when well meant, work to the good of the military service, and an officer cannot be too careful of his course in this respect. No officer ought to expect soldiers under his command to carry out loyally his orders if the officer himself does not set the example. The disastrous habit of "knocking" all orders and all authority is one of the most harmful influences in our whole service, and it is at its worst before subordinates.

The great Admiral Jervis once said: "I dread not the seamen; it is the indiscreet, licentious conversation of the officers, and their presumptuous discussions of the orders they receive that produces all our ills."

Drunkenness.

One of the most difficult things that the young officer will have to contend with in the management of his men is to prevent on the part of some of them overindulgence in intoxicating liquor. This is a hard problem for even the best and most experienced company commanders.

Some officers, many in fact, never think of taking any preventive measures. The soldier who gets drunk is placed in confinement; when he has sobered up he is tried by court-martial, a portion of his pay is taken away, perhaps additional confinement is awarded; and that ends it for the time being. Another pay day the same thing happens, and pretty soon the man is a confirmed drunkard. The officer who draws high pay to control his men never thinks to raise his hand or to lift his voice in the effort *to prevent* the soldier from getting drunk—his only action is to punish the man after the offense. Any officer who is satisfied to allow his men to drink to excess, and makes no attempt *to prevent it,* is not doing his full duty.

I know full well that there are some men, a few in almost every com-

pany, who are incorrigible, and who can be managed only by the strong arm of the law. Nevertheless, most of our soldiers join their companies as young recruits. They are not confirmed drunkards when they join, and with proper management they can be kept decent and sober. The most demoralizing influence upon them is their contact with the "hard nuts" of the company. The country boy who is not accustomed to drink requires a good deal of backbone to withstand the guying of older companions who make sport of him and his lack of worldly experience. Many a young recruit is driven to his first offense through the taunts of older men.

It requires a lot of moral courage on the part of the inexperienced lad to stand up against the boastings and the enticements of those whom they regard as veterans. The time to save the young soldier is in the beginning. A little care on his captain's part will do much to keep the young soldier straight. If his foot slips and he gets drunk for the first time, don't keep him in the guard house forever, thereby crushing his self-respect. Try an appeal to his pride.

In my own experience as company commander, I never found any other method as useful to me when a soldier had sobered up as to bring him alone into the orderly room, look him squarely in the eyes, and say, "Jones, don't you feel ashamed of yourself? Your conduct is hurting yourself and your company, too." The man in uniform is just as much subject to remorse as the man in civilian clothing. It was a very exceptional soldier who would not say: "Yes, Captain, I do feel ashamed, and I am going to keep sober next pay day." Then was the time to say: "All right, Jones, I am going to watch you next pay day, and see if you are man enough to keep sober."

And in Heaven's name, if Jones does come through successfully, don't fail to find opportunity to let him know that his victory has been observed. It is not a bad plan to do this at inspection in ranks; the men standing adjacent will hear the captain's recognition of Jones' improvement and they may be depended upon to tax him thoroughly should he fall again.

A little touch of the human element now and then, a word of encouragement from the captain at the right time, will help many a young soldier to find himself, and bring him to feel something of that personal pride in himself and his record which is the very foundation of every good soldier.

The captain who is determined to do his full duty by his men has still another, means at his disposal, and a very effective one if he properly uses it. The young soldier belongs to a permanent squad of which a corporal is squad leader. The corporal has but seven men to look after, and he should be made to understand at the beginning that it is a part of his duty to look after the behavior of his men. The squad belongs to a larger section of the company under supervision of a sergeant. Give the sergeant to understand that he is to see that the corporals under his supervision do their full duty. In this way the recruit is being looked after, and both the corporal and the sergeant are getting useful training, and an idea of the responsibility that has been placed upon them.

If anything goes wrong with a soldier do not fail to bring both the sergeant and the corporal into the case, so that they may thoroughly appreciate and realize their own duties. In many companies the men are permitted to get drunk and to receive punishment therefor, while the sergeants and corporals pursue the even tenor of their way with never a word said to them.

Personal Acquaintance with the Men.

The officer who is on duty with a company ought to be able to call by name every man of his organization. Nothing gives to the soldier a more belittling idea of his importance than to find that his own captain does not know him by name.

Some officers may regard this as a trivial matter, but it is one that the officer who wants to succeed cannot afford to neglect. If he does not exert himself sufficiently to know by name his own men he need not be surprised if the interest of the men in their company is only perfunctory. Men will not do their best work for an officer who shows so little interest in them.

The Company Mess.

One of the most important duties that falls to the lot of the line officer is supervision of the company mess. It is surprising how much the interest of young soldiers centers around the company kitchen.

The successful line officer must take an interest in that which is of such vital importance to his men. There should be close inspection of the kitchen, the cooking utensils, the refrigerator, the dishes and all other mess paraphernalia. Scrupulous cleanliness must be insisted upon. The officer should frequently sample the food, and he should take an active part in planning the daily menus so as to afford pleasing variety. The interest of the officer must be real, not feigned. Soldiers are not at all slow in detecting the officer whose interest is only a thin veneer.

Punishments.

Scarcely any feature of military administration is more perplexing to the inexperienced officer than that of punishments. Under our army regulations and under the Articles of War, much authority is placed in the hands of the commissioned officer. Necessarily this must be the case. Discipline cannot be maintained unless the officer has authority adequate for that purpose.

The object of punishment is to maintain discipline, and its use should be limited to the minimum consistent with the object in view. The second paragraph of our army regulations reads as follows:

"Military authority will be exercised with firmness, kindness and justice. Punishments must conform to the law and follow offenses as promptly as circumstances permit."

No better guide can be given to the young officer than that quoted above, but he needs something a little more in detail until experience has shown him the way.

To secure best results the essential elements of punishment are justice and promptness. The officer ought always to investigate thoroughly before he administers punishment. It is better that an offense should go unpunished than to make a mistake and punish an innocent man.

In our service the amount and the kinds of punishment vary widely; the personal equation of the officer who has the matter in hand cuts a large figure. One officer will punish quite severely what another overlooks entirely. Some officers have a cast iron rule; "Let no guilty man escape." Therefore, they prefer charges for every dereliction, the green recruit and the "old soak" are all in the same boat.

To be sure there is to be found, now and then, a soldier to whom all appeals are useless. To such a man the methods of force are obligatory, and should be applied freely and unhesitatingly. But the average soldier will respond surprisingly well to appeals to his pride.

Under our regulations there is much power in the hands of the company commander. Company punishment and the withholding of privileges are sufficient in the hands of a capable officer to control all except the really hard cases. It ought to be the effort of every line officer to use company punishment whenever it is possible to secure the desired results in that way. Of course, the soldier must be informed of his right to demand trial by court-martial if he prefers.

In the first place the captain knows his men better than any summary court officer can possibly know them. In addition it is of great advantage to a captain

to manage his own men. Whenever the captain has to call for outside assistance through the medium of court-martials he loses an asset of great value. A company likes to feel that its captain is a strong man—strong enough to manage his men without having to call for outside help. Moreover, when the captain imposes punishment in the shape of kitchen police or extra fatigue, it is usually served around the company barracks where the men of the company have a chance to see what is happening. They usually taunt their luckless companion, and at the same time make up their minds not to be caught in the same predicament. At the same time the company is the direct beneficiary for the punishment usually takes the form of company chores such as washing windows, scrubbing floors, peeling potatoes, and the like.

Serious offenses, such as disrespect, insubordination, wilful defiance of authority, require prompt and adequate punishment. Nothing is to be gained by attempting any halfway measures with an insubordinate or mutinous soldier. On the contrary discipline is much more likely to be restored by strenuous measures than by halting, flimsy ones. The wilful, defiant soldier should receive prompt and adequate punishment not only by way of correcting him, but also for the sake of its influence on others.

A word must be said also as to the manner of the officer while awarding punishment. The officer should be calm and dignified. The excited officer, talking in a loud tone, and rasping the soldier whose case he is adjudging accomplishes little that is of use. He arouses in the soldier a feeling of resentment that is far from helpful in establishing discipline. Military efficiency does not consist in a loud manner and a strident voice.

Orders.

Any order given, whether oral or written, should be as short and simple as clearness will permit. The greatest order ever given consisted of four short words. God said: "Let there be light." Take that as a model and you can not go wrong.

Cheerfulness.

Hardly anything is more useful to an officer than cheerfulness. A grouch casts a gloom over everybody. The cheerful man is an asset of great value. I once had in my company a short, sawed-off Irishman whom the men called "Shorty." Sometimes around pay day he was a little hard to manage, but he was a valuable man in the company because his unfailing wit and cheerfulness were contagious, and served to keep the men in good humor. One hot day after a long march in the Philippines we were lost, and following an unknown trail up hill and down dale. Finally, I brought the company to halt and sent "Shorty's" squad to the top of the hill to reconnoiter. When he had reached the summit one of the men called to him, "I say Shorty, is this the last hill?" To which he immediately shouted back, "Yes, this is the last hill, the next one is a mountain." His apt reply put the men in a good humor and made them forget their fatigue.

Nothing is better around the barracks than a few who can sing, or a man who can play the guitar or banjo. Whatever gives a cheerful tone to the barracks, or the camp, is surely worth cultivating. The efficient organization is generally the cheerful, happy one; it is never the sullen, grouchy one.

Loyalty.

Among the qualities which are essential in the make-up of the really valuable officer, there is scarcely any one of them that ranks in importance with loyalty —true, willing, and unfailing devotion to a cause.

In his individual relations to his superiors, we understand loyalty on the part of a subordinate to mean a true and voluntary compliance with the will and plans of the superior. Every man has a desire to have things his own way, that is only natural, and no man can be blamed for it. The milk and water man, the man who has no ideas of his own, who is willing to sneeze every time his

superior takes snuff, never amounts to very much, anyway. But there are a proper time and a proper way to express our ideas. Once a decision has been reached by a superior—once your duty has been laid down—it is time to give up your own ideas, and attempt with whole might to carry out the plan which it is your duty to follow.

Let us note, further, that true loyalty does not mean blind, passive obedience to the letter of the law. It means a true effort to carry out the intent. As an instance in point the following quotation from Commander Schofield of the United States Navy is cited:

"In an army maneuver a captain was instructed to take his company to a certain place and remain there. He obeyed. Later a general officer passing that way inquired of the captain what he was doing there, and was informed by the captain of his orders 'to remain.' It was not conceivable to that general officer that the captain had no further instructions, but such was the case. Was the captain loyal? Not unless he had exhausted every means to determine his true relations to the affairs in hand. Loyalty is not characterized by blind and servile obedience, but by intelligent, active and zealous obedience."

The truly loyal officer will never be satisfied to shield himself by claiming ignorance of his orders if it be possible to obtain information. Loyalty to duty requires the suppression of his own interests to aid the general plan.

If we examine ourselves carefully, we shall find too often a tendency to examine the orders of our superiors. If they agree with our own ideas we are intensely loyal. If they do not, we take them with bad grace. In other words, it is too often the case that our loyalty rings true only when the plan we are required to follow agrees with our own ideas. It is a very poor and unreliable subordinate who can be depended upon to carry out energetically only those plans which he himself approves.

Appointment and Use of Noncommissioned Officers.

The back-bone of every organization is the noncommissioned officers who are a part of it. Properly selected, properly trained and properly used, the noncommissioned officers are the mainstay of discipline and of efficiency. In nothing is a young officer more likely to make mistakes than in the selection and in the training of the corporals and the sergeants who are under his control.

These noncommissioned officers live in the barracks, sleep in the barracks, and take their meals in the company mess. They are present during the very considerable time when there is no officer on hand. Upon them falls the brunt of maintaining company discipline. Hence the great importance of training them so that they may be properly fitted for their important duties.

No private ought to be made a corporal under the supposition that in the natural order of events when he has become the senior corporal he will be promoted sergeant. Such a scheme is to take from the corporal the main incentive to do his duty thoroughly. It robs the company commander of the great value of competition, and competition properly used is one of the very greatest assets in successful company administration. At the time of his promotion the corporal should be thoroughly instructed in the duties that will be expected of him. At the same time, he should be told that his own future will depend upon the way that he performs this duty. He should be told if he cannot manage the seven men of his squad successfully he will be relieved and a successor appointed. In addition, he should be told that if he manages his squad better than any other corporal in the company he will be the first to be promoted sergeant. In this way will be established competition and the great benefit of competition will be gained.

It is not a difficult matter for a tactful captain to establish a system of competition, either among squads of his company or with other companies of the same regiment. I have seen companies under a tactful captain work

vountarily and enthusiastically in planting vines and sodding the company area, laying neat walks, and in every respect improving the appearance of the company for the main reason that they wanted to be regarded as having the most attractive company barracks. So far as competition among squads of the same organization is concerned, a captain can readily establish it by holding his corporals responsible for the appearance of their squads, by requiring of them that prior to the regular Saturday inspection corporals shall make the required preliminary inspection.

A remark of the captain at his own inspection to a corporal of the squad that he had found the squad in unusually good shape will put the men of that squad on their mettle; will make every man in the squad strive to be worthy of that captain's commendation on subsequent occasions.

The sergeants in their turn should have supervision over the squads belonging to their sections, and in dealing with these squads should be required as far as possible to exercise his control through the corporal. Any officer who has to deal with men should call upon both sergeants and corporals. It is only in this way the best use of noncommissioned officers can be made, and it is only in this way that can be laid the assured foundation for true company efficiency.

There are two things the officer must look to carefully. Never fail to back up your noncommissioned officers when they are in performance of duty; never correct one in the hearing of privates if it is possible to postpone the correction and give it in private.

Tact.

Of all the valuable qualities which an officer can have few are greater in importance than tact. I do not know exactly what definition the dictionary gives to this word, but in a military sense it means a knowledge and an appreciation of when and how to do things.

The prime essential of tact is a first-rate knowledge of human nature. The tactful man knows how to deal with his fellow-men. In our service today there is many an officer of experience and ability whose military usefulness is seriously marred because of his lack of tact. It is the oil which makes the machinery of military affairs run smoothly. When tact is lacking the military machine soon acquires a disagreeable squeak. It is not infrequently the case that success which attends an effort depends upon the time, the place, and the attending circumstances. Just a little knowledge of when and how to do things sometimes accomplishes the desired results when the lack of such knowledge would result in inevitable failure.

Duty.

Duty is the most important word in the soldier's vocabulary. It is a word which determines in large part the value of any officer to the military service. Great ability, fine common sense, excellent initiative, and many other important military qualities will be lost unless accompanied by an adequate sense of duty.

By duty we mean that an officer constantly exerts his best ability towards doing what he ought to do. The officer who neglects to put forth his best efforts under all conditions thereby falls short of that which is expected of him. The young officer can readily determine for himself his own personal equation. Better than any one else the officer knows whether he constantly uses his best efforts and whether to the best of his ability he is attempting to perform that which he ought to do.

Duty calls for self-sacrifice. It requires that an officer shall neglect his own comfort and his ease to do that which his own judgment and his own conscience tell him he ought to do. The conscience of the young officer will be his best guide to tell him whether he is following his duty according to

his best light. His conscience will tell him whether, when he is on guard he uses his best endeavors to instruct and to inspect his sentinels closely and thoroughly; it will tell him whether at the end of a hard march he neglects his own weariness to look after the comfort of the men who are dependent upon him; it will tell him whether in all of the matters which are put upon him he is giving to the service the best that is in him. If he does not in every respect use his best abilities, if he is not persistent in his endeavors to do what he ought to do, then he has fallen short of what the government has a right to expect. Many an officer in our service, of excellent ability otherwise, finds himself unrewarded because he is lacking in the talent of continuous and persistent effort. It is of no use to be a genius unless that power is used. The careful, slow-plodding officer, who can always be relied upon to do his best, is of far more value than the brilliant and erratic officer whose ability is not always dependable.

Decision.

Scarcely anything more adverse to the efficiency of an officer can be said than to say that he lacks decision. By decision of character we mean the ability to arrive at a conclusion and follow that conclusion to its legitimate results. The uncertain man who never knows his own mind and who is always conferring and consulting with others is never able to gain the confidence of his own men. Soldiers in a company are not long in sizing up an officer's ability in this respect.

Few young officers have decision of character in a prominent degree. Lack of experience makes many of them timid. Decision of character in the military man is not as a rule a thing which comes to an officer in full blossom. It is, however, a thing which can be readily developed. Observation and experience are great teachers in this respect and by constant effort any young officer of ability will soon be master of his own decision. I do not mean by this that an officer, whatever his ability, should neglect the opinions and suggestions of others. Nothing is more disgusting than the headstrong man who will listen to the opinion of nobody. What I mean is that having heard the opinions and suggestions of others the decision must be that of the officer himself. The young officer should try to train himself in this respect and come early to rely upon himself and be master of his own mind. Self conceit in any man is disgusting but self-confidence is an admirable trait when kept within proper bounds.

Initiative and Self-Confidence.

We have lots of officers of ability and of good intention who know their duty and do what is told them in an excellent way; but in trouble with such officers is that they lack initiative. They never do anything except what they are told to do; they never start anything.

No officer is so helpless and so hopless and so useless as the one who is content to drag along pursuing the even tenor of his way, never evincing any real active interest in his own profession. The officer whose only interest in his profession is to draw his pay and keep out of trouble is not a military asset but a liability. The officer in our service who is known as a live-wire is a man who is constantly on the alert to improve the service. It is the duty of every officer to try to inculcate initiative in those under his control and to foster it by every means in his power. This can best be done by assigning certain duties to subordinates, giving them general instructions relative to the matters under their charge and leaving the accomplishment of details to their own ways and means. The higher in rank that an officer gets the more important it is that he learn the art of supervising, while entrusting to subordinates the actual performance of details. On the part of the subordinate who is ambitious to succeed every opportunity should be seized to attain suc-

cess, coupled with a determination to put forth his best endeavors. No subordinate should ever miss a chance, however strenuous the work required, to have an independent command.

In carrying out any work entrusted to him, however, the subordinate should be very careful to make a distinction between true initiative and undue license. Nothing is more irritating to a superior officer than to find that the authority which he has been willing to entrust to a subordinate has been made the basis, on the part of that subordinate, of exercising an authority which was never meant to be delegated to him.

True initiative is based upon strong will power. Will power is a quality born in men and not readily acquired, although it may be developed and increased by proper care. No officer is really valuable who has not strong will power, for with it goes energy, power to accomplish work and resolute persistence. Von der Goltz says that "Sway over others is before all else founded upon will." Usually accompanying strong will is self-confidence. A man who has self-confidence has the courage of his convictions and is rarely possessed of doubt.

These two qualities, initiative and confidence, almost invariably are accompanied by a most valuable quality—that of willingness to bear responsibility. Among all desirable qualities which an officer can possess scarcely any are to be rated higher than the power of initiative and the confidence in himself to attain the ends which he has in view.

Complaints.

The officer on duty with troops is bound sooner or later to have to deal with complaints on the part of some of his men. The handling of complaints is a pretty good test of an officer's ability to manage men.

If too much encouragement be given complainants there is sure to be a growing number of men in every company who will always be ready to complain on one score or another. Very frequently the complaints are against noncommissioned officers; it is not infrequently the case that they are well founded, and the neglect to entertain and investigate them would leave a festering sore that would be bad for discipline and that would engender discontent. It takes good judgment to handle complaints satisfactorily, so as neither to weaken the authority of the noncommissioned officer nor to allow the complainant to go away feeling that he has not had a square deal.

Some officers allow men to come to them freely with complaints without ever having spoken to any noncommissioned officer or to the first sergeant. Other officers never receive any complaints, or if they do it is in such a grudging and irritable way that the man feels that he has not had justice done. I believe that a safe rule in hearing complaints of men in a company is to insist that each one shall have permission from the first sergeant before being allowed to come to the officer to state his case. At the same time the first sergeant should have direct and positive instructions that he must report to the captain every complaint that he receives. When the complaint has been heard the man must be given a square deal. If it is a case in which the noncommissioned officer is to blame a reprimand should in the usual case be given in private.

The officer must always bear in mind his duty to support noncommissioned officers who are attempting to maintain discipline, but no noncommissioned officer is entitled to support at the expense of doing justice to the men under his control.

Neatness.

If a regiment is stood in line for inspection it is often possible to pick out the best and most efficient company in that regiment by walking down the line and selecting the one that presents the best and neatest appearance.

When an inspector looks a company over and finds many men who are not properly shaven; and a considerable proportion have grease spots on their coats and dust on their shoes, and a goodly number with hair that needs trimming; when he finds that the equipment is in poor shape and that there is a lack of uniformity in the way that it is worn, he can feel pretty sure that the instruction and general efficiency of that company will correspond to its outward appearance.

Neatness is a prime military virtue. Therefore, the young officer should strive for it with might and main. There is no one thing for which American soldiers have been more constantly criticised than in their slouchy appearance; in their lack of care in the details of presenting a neat and soldierly appearance. There is no doubt that we are entirely too careless in this respect. Everything about a military organization ought to be a model of order, arrangement and neatness. The mess room, kitchen, barracks, billet, tents, clothing and equipment of the men, in fact everything connected with the company should receive scrupulous care. It is here especially that the officer sets the example and he can not be too careful.

It ought to be a matter of pride on the part of the officer to see how neat he can keep his company, and he can do no more helpful thing in his respect than to set for his men an example that they will emulate.

Saluting.

There is hardly anything in which the American Army is more negligent than in the matter of saluting; there is scarcely anything in which it makes as bad an appearance. We have never been a military people and the great mass of our fellow citizens have been inclined to look upon salutes on the part of the soldier as a mark of inferiority or a badge of servility.

A great many American soldiers render the salute in a shame-faced sort of way. Many of them dodge it entirely by pretending not to see the officer. One has only to walk along the streets of the city where there are many soldiers passing to verify the foregoing statement. As a matter of fact, nothing could be further from the truth than that the salute is a mark of servility or inferiority. On the contrary, it is only an exchange of courtesies between men who are in the military service. If a soldier is required to salute the officer, there is the same requirement that the officer shall return the salute and shall do it in the same way.

In civil life the young man who is employed in a bank or store would be regarded as decidedly uncivil and lacking in courtesy and proper respect if he failed on entering his place of employment to greet those over him. It is not at all belittling, not at all a badge of servility for the bank clerk to say, "Good morning" to the cashier when he comes into the room. Neither is it at all a badge of inferiority for the soldier to salute his officer. Carelessness and indifference on the part of our soldiers and sailors in this respect is most harmful to discipline. Discipline requires that the soldier shall salute his officer and when this requirement is neglected it establishes on the part of the soldier a habit of neglect which will extend to other matters.

The importance of the salute and what is meant by it is impossible to over-estimate. It is a mark of the soldier's respect for his officer. At the very beginning of the Bolsheviki reign the soldier's and workman's congress passed a resolution as follows: "The men will not in future salute officers." That was the first step toward the downfall of the Russian military forces. In quoting this resolution, Colonel Applin of the British General Staff writes, "Now isn't that a trifle? Yet that small trifle had led to the telegram that reads, 'The troops have left the trenches. The artillery is being sold. Officers are serving as cooks and orderlies.'"

I am convinced there are two main reasons why our soldiers are so care-

less in the matter of saluting officers. The first is that they are not properly and thoroughly instructed, that they are allowed to pass officers without saluting or to do it in a most improper way, and all without correction; and secondly, that a great many of our officers are themselves most negligent in the way they return salutes. It ought to be a matter of pride on the part of every officer carefully and punctiliously to return the courtesies of soldiers. If more regard were given to this matter we would soon find a very different status from that which now exists.

Desertion.

Of all things in our service which are harmful to military efficiency few of them are equal in importance to desertion. We are not a military people and a great many of our fellow citizens have not looked upon the military service with any degree of interest or of affection. By many of our people the seriousness of the crime of desertion is not appreciated. They regard the soldier who deserts in the same light as a civilian who has made an agreement to render certain services and then quits his job. The heinousness of the offense of taking an oath to serve the country and to follow the country's flag, and then violating that oath, is lacking in civilian estimation.

In large part desertion will cease as soon as the soldier knows that he has thereby committed a crime which makes him despicable to his comrades in civil life. While I am sure that desertions in our army are largely the result of the fact that the seriousness of the crime is not appreciated by our civilian population, I am confident that the number of desertions in our army would be greatly lessened by proper effort on the part of our officers: If any officer is satisfied to have men desert from his company without his ever taking any steps whatever to prevent it he has failed in his duty and he has not done what the government has a right to expect. The officer has a certain duty which he owes to himself and to his government and if he shirks it the blame, in part at least, can be placed upon his shoulders.

Every recruit who joins a company ought to be talked to on this subject; he ought to be instructed thoroughly by his officer as to the difference that exists between a mere civil contract and an oath of enlistment. He should understand the difference between a man who makes a bargain in civil life and then changes his mind and the man who raises his hand and takes a solemn oath to serve his country and follow the flag, and then breaks that oath. It is up to the officer to explain this difference to the young soldier, not by long sermons, but by such brief talks to his men as will put into the company a spirit of detestation for that man who engages to serve his country and then violates his oath.

Discipline.

That which distinguishes the trained military force from the mob is discipline. It is a most difficult quality to secure. Our vast resources make it possible to purchase ships, munitions and supplies of every kind. If we are short on supplies we can go into the market and buy them, but no financial resources can purchase discipline because it is not for sale. It can be provided only by the slow laborious process of constant care and persistent effort. In his admirable lecture on this subject, Colonel Applin of the British General Staff defines discipline as, "instant and willing obedience to all orders, and in the absence of orders, to what you believe the order would have been."

Discipline is the very soul of armies, difficult to acquire, but capable of being lost almost immediately. The means of acquiring discipline vary according to the characteristics of the people. The methods which succeed in one country will fail entirely in another. With us the only means of discipline that is likely to succeed is that which has for its object the development of a willing and cheerful obedience on the part of the soldier. The officer who knows how to attain this end is an extremely valuable one. To establish thorough discipline in

an organization is not an easy task and we may as well recognize some of the difficulties at the beginning. *In plain truth the young American is more difficult to discipline than the soldier of almost any other nationality.* This may not be a pleasant truth, but it is truth just the same.

"We are all sovereigns in America" makes fine reading but it does not make fine soldiers. No man can be a good soldier until he has thoroughly learned the lesson that the principal duty of a soldier is not to be a sovereign but to obey his orders. And "there's the rub" with the young American. All his life-time he has been accustomed to doing as he pleases. We do not any of us lay aside the habits and the training of a life-time without considerable struggling and considerable misgivings. The young man who has been accustomed to being his own master and to making up his own mind as he goes along does not take kindly to the restrictions which discipline imposes. There are two principal methods of enforcing discipline—first, by force; and the second, based on common sense, pride and patriotism. Our people would never stand for the first method. It is foreign to our whole national character and should not be considered for a moment. At the same time no discipline can accomplish much if force is lacking when it becomes necessary. The true method of establishing discipline is by reliance upon the pride of the soldier; by appeals to his common sense; and by force of example.

Amusements and Recreation.

"All work and no play makes Jack a dull boy" is just as true of the young soldier as it is of the young civilian.

Some officers take very little interest in their men outside of bare official requirements. When this is the case it is unfortunate. Officers should feel a lively interest in whatever will add to the pleasure and contentment of their men. Efficient soldiers are generally contented ones, and you cannot keep young American soldiers contented within the bare walls of a barrack building without providing some form of amusement. If the officer responsible in this matter does not take sufficient interest to provide adequate facilities for amusement and for recreation the men will look around and become interested in the first thing that comes to hand. During the proper seasons of the year physical contests and out of door games are the best sources of recreation for soldiers because they serve to develop the physical powers of the soldier and have a tendency to interest him in normal healthy recreation. During the winter months a bowling alley, a few pool tables, an amusement room, a good reading room supplied with magazines and books are all aids to contentment and hence are aids to discipline.

The amusement and recreation of soldiers afford a fine field for the activities of young officers. In this field they can do much pleasant work and at the same time gain much useful knowledge in the management of men. If the services of our young officers who are graduates of West Point and the colleges and universities were properly utilized they would be invaluable in the way of supervising out-door sports and gymnastic exercises of their men. These subjects all receive great attention at West Point and also at the various colleges and universities, which are the sources from which we have derived many excellent young officers.

Language and Manners of Soldiers.

Any close observer would be surprised to see what a difference there is between companies at the same station and sometimes in the same regiment in respect to the language and manners of the men. That difference like many other differences between companies is due to the individual equation of the officers who are responsible for the organization.

Truth compels the statement that neither the language nor the manners of many of our soldiers are what they ought to be. Most officers will readily admit this to be the fact. I do not draw attention to this unpleasant statement except to place the blame where it ought to be, upon the officers who are responsible

for the organization, and to say that there can be most radical and pleasant change in this respect if the officers will exhibit a little needed attention. All of our older officers will admit that the younger soldiers of many organizations have a bad habit of using disgusting, vulgar and obscene language, language that would bring a blush of shame to the cheeks of any decent woman. It is not infrequently the case that this disgusting language is used in the presence and in the hearing of officers without any effort on their part to check it.

I am not a prude and I am not shocked when I hear a soldier or any one else utter an ordinary oath; but the vile, obscene language which some officers permit to be used in their hearing with no word of protest, is disgusting in the extreme. No officer worthy of the name ought to permit it for it is an easy matter to correct. Nothing more is needed than a few words to the effect that this kind of language will not be tolerated in the company. Lay the law down to the noncommissioned officers; award a few tours of kitchen police to first offenders, and there will be no subsequent violations.

When I was an inspector I used to drop in some times at meal hours of the organization at the post where I was making an inspection. I sometimes found the greatest difference between companies. Some captains required their men to come to meals in proper uniform and the company presented a good appearance while at meals. In other companies men were permitted to straggle in at will, barefoot, wearing undershirt, blue demin overalls, or in any other old thing that came handy, looking for all the world like a lot of cowboys at a "chuck wagon dinner."

If an officer lets his men run wild, if he permits them to use any language they wish, however vile or obscene, if he allows them to come to meals barefoot and in undershirt, it is not unlikely that the same spirit will characterize the performance of all that they undertake.

Leadership.

Leadership is the most serious part of the officer's business. It is toward fitting himself for this most important work that all of an officer's energy should tend. To be a real leader of men is the summit of an officer's usefulness. Few officers attain it in eminent degree. Nobody can tell just what are the indispensable qualities that produce the desired effect.

Captain (now Brigadier General) Andrews said "A good leader is as one with his men, he speaks their language, he shares their blessings and their hardships, he is zealous of their name, he defends their sensibilities and their rights in the larger organization, in fact he is the recognized guardian of their welfare, physical and mental, as individuals and as a group. He becomes their hero and is affectionately nick-named. Making camp after a hard march, he will not accept an invitation to lunch while his men go hungry awaiting a delayed wagon; he will not take shelter while his men lie out in a storm. In short he does everything at all times to make them feel that he is looking out for their interests, not his own selfish comfort. It is incidentally true that when hardships come he will be more than repaid by their devotion to him and care for his comfort."

Leadership is based on a knowledge and correct appreciation of the enormous value of the spirit which actuates men. Napoleon's opinion is embodied in his famous maxim that: "in war the moral is to the physical as three to one." Marmont said: "A leader's knowledge of war is incomplete if in addition to his skill in conceiving technical combinations he does not possess a knowledge of the human heart, if he has not the power of gauging the momentary temper of his own troops and also that of the enemy."

Leadership must accommodate itself to the men who are led. Napoleon was wont to arouse his soldiers to wild enthusiasm by harangues addressed to the imagination of his men. Similar harangues addressed to American soldiers would fall flat. Yet the American soldier is just as susceptible to the influence of his officer as the French soldier; the only difference is that their influence

must be exerted in a way to accommodate itself to his national characteristics, and this brings us back to the statement already made, that the young officer who desires to succeed must carefully study his men. All men cannot be managed in the same way. There is as much difference between men as there is between children and the officer will have best success who recognizes this fact and works upon it. Every group of men working together soon comes to have a soul of its own. This is so regardless of the size or the nationality of the group; it is true of a squad and it is true of an army. The leader who learns to know that spirit has acquired a grip that is invaluable. General Andrews well says, "There are many means of appeal to this spirit; you must learn to use them. You can make lagging foot-steps quicken and fatigue-dulled minds brighten, just as martial music will make a jaded column spring to life; the men are no less tired, but new nerve-forces have supervened and made them forget the fatigue. This soul is as susceptible to bad influences as to good. How disastrous if the leader offend it. How important that he be in touch with it, and treat it intelligently."

Caring for Government Property.

One of the important duties of officers is to see that proper care is taken of government property. Too often this important duty is neglected. Under existing orders the government furnishes, as may be needed, clothing and equipment for soldiers and there is no charge against the soldier for what he receives. Often-times there is a tendency on the part of the soldier to mutilate or destroy government property in order that it may be replaced by that which is fresher or newer. It is the business of the officer carefully to watch and protect the interests of the government in this matter.

Some time ago when I was an Inspector a large number of blankets were placed before me and I noted they were all torn in practically the same way. Investigation showed that they had been torn under the supervision of the young officer who commanded the company because he wanted his men to have new blankets. He had to pay personally for the damage which he had done to government property and I have no doubt that the lesson in his case was a salutary one. It ought to be a matter of pride to officers to aid the government by seeing that the best possible care is taken of all property issued to soldiers and to build up among the men a feeling of their duty to the government in this respect.

Saving Money.

The government makes provision for allowing any soldier to deposit money with the paymaster and binds itself to pay interest of four per cent on deposits. This apparently is a small matter but it is one which ought not be neglected.

In the first place, depositing money with the paymaster inculcates in the young soldier an idea of thrift. In the second place, when he deposits his money he hasn't so much to spend uselessly. And lastly, when a soldier has money on deposit with the government the officer who has charge of that soldier has a grip upon him that is quite useful. Rarely does any soldier desert who has considerable money with the government; rarely does he go absent without leave; and not often is the soldier who deposits money addicted to the use of liquor. It will be found as a rule that those soldiers who deposit money with the government are the best and most reliable men of the company.

Talking to Soldiers.

If young soldiers are talked to in the right way and at the right time and just to the right extent, it is extremely useful to them. They learn much in this way that they could learn in no other. Some officers seem to act on the principle that a soldier should absorb all of the things which he ought to know just as a sponge absorbs water. There are a great many of our soldiers who get into trouble and are tried by court-martial who have never heard a single officer warn them against any of the temptations of a soldier. They have never

been told about desertion, nor of the respect which they owe to their uniform, nor cautioned against the evil of drunkenness, nor of wearing their uniform into dives and disreputable places, nor concerning any of the other many, many things which a soldier ought to be told about.

On the other hand, talking to soldiers should not be carried to such an extent as to make it either a bore or to nag them by long, drawn-out sermons. There is a way to do everything right and the right way to talk to soldiers is to give them a few short sentences in regard to one subject at a time. The time to talk to them is when they are not fatigued and the way to talk to them is by looking them squarely in the eye, say what you have to say and then stop.

Esprit.

All of an officer's efforts should be directed towards creating the proper spirit in his men both individually and collectively. The soldier or the organization which does duty only because it has to is of very poor quality.

There are some horses of mettle and spirit which it is a pleasure to look at. Their movements are free and easy and they work because they like it; there are other horses which never move unless there are oats ahead of them or a whip behind. It is just so in the army. Some soldiers and some organizations take an interest and a pride in their work. Others drag along and find their chief interest only at the mess table or on pay day.

Therefore, all of an officer's efforts should be bent upon developing an interest of his men in their work. The result will depend upon the officer himself. The first requisite on the part of the officer to accomplish this result is a live interest on his own part. No man can create an interest among men where he feels no interest himself. One officer will step in front of a company and the men will give a fine, snappy drill; all of the men will be right up on their toes. Another officer may take the same company and every movement will drag.

In establishing this interest an officer should be careful to consider the characteristics of his men. The autocratic methods that are used in the German army would bring only disaster if applied to the American soldier. The German soldier will do whatever his officer tells him. Years of training have instilled into him implicit obedience to the will of his officers. With the American soldier you get best results by explaining the reasons for things first. The American will endure privation and hardship as well as any soldier in the world when privation and hardship are necessary, but he does not like to undergo discomfort unless he sees the necessity for it. For instance, the American soldier will carry his heavy pack containing rations, and blankets and ammunition uncomplainingly. He needs his blankets, he wants the food and he may have to use his ammunition. A few years ago when practice marches first began it was ordered in some commands that extra weight should be provided by putting small bags of sand or bits of iron wrapped in cloth into the soldier's pack. The idea was to harden the soldier by getting him accustomed to the extra weight. To many soldiers this plan was exceedingly obnoxious. They did not like the plan because they could see no necessity for it. In soldier parlance they objected to being used as pack horses.

The officer who can develop in his men a live spirit is a most valuable one. The means of doing it are various—often-times competition is the most successful method. Competition between squads of the same company are most effective. Then the effort to excel some other company is often-times used with great advantage. One officer under whom I served was most successful in developing that kind of individual interest in his men by keeping ever before them the fact of their individual responsibility. If he saw one of his men presenting a careless or slouchy appearance he would have him sent to the orderly room and would say, "Smith, I take lots of interest in the appearance of my men and I want you to do it, too. Your present appearance might do for some other company but it won't do for this one because it is not up to our standard." By such means he

made the men of his company take an interest in themselves and an interest in the company.

The morale of armies is the most valuable asset they can have, and the morale of armies is founded upon the esprit of individuals.

Relations Between Officers and Enlisted Men.

Under army regulations and customs of the service undue familiarity between officers and enlisted men is forbidden. Our country is so wholly non-military in character that many Americans have found it hard to understand this relationship, and have commented adversely upon it.

This requirement is not founded upon any difference in the social status between officer and the enlisted man; nor is it founded upon any difference in culture or mental attainments. It is founded solely upon the demands of discipline. Discipline requires an immediate, loyal, cheerful, compliance with the lawful orders of the superior. Experience and human nature show that these objects cannot be readily attained when there is undue familiarity between the officer and those under his command. Take for instance a half dozen college chums who are ordinarily intimate, and are accustomed to chaff one another and to associate upon terms of utmost familiarity. Let one of them presume to give some order or some direction to the others. What happens? As like as not the presumptious individual is "called down" with a unanimity that is astounding. He is lucky if he escapes without receiving some physical reminder of his inability to impose his own will upon his boon companions. It is an old saying that "familiarity breeds contempt," and nowhere is that more true than in military life.

Now and then we see officers who are inclined to neglect or ignore the distinction that prevails in all armies between officers and men. Such officers are never successful in the management of men. Soldiers understand and appreciate the reasons and the necessities which prevent undue familiarity between officers and their subordinates. They have a thorough contempt for the officer who forgets his place and his duties and who neglects the requirements of orders and regulations. On the other hand let it be well understood that there is no place in the American army for the rasping, unreasonable, martinet. Our discipline is not founded upon force. It is rather of the kind that is based upon common sense and has for its object the attainment of a willing and cheerful obedience. The following extract from a letter of instructions from the War Department, dated December 16, 1916, shows the attitude of the department in this important matter:

"While there must be no relaxation in discipline in exacting a thorough and prompt performance of military duty, officers when dealing with subordinates must bear in mind the absolute necessity of avoiding language and remarks or gestures which tend to lessen self-respect. This is all important if we are to have a cheerful, willing, and efficient army. It is not necessary to adopt a tone of voice or manner different from that usually employed in general conversation, and especial care must be taken against sarcasm and unnecessary public rebuke."

Summary.

1. The best grip any officer can have on the American soldier is on his pride. Therefore, do everything possible to build up the soldier's pride in himself and in his record. Constantly appeal to him to keep a clean and an honorable record.

2. Treat the American soldier as a man; look him squarely in the eye when you talk to him, and treat him justly.

3. Never do anything to lessen the respect of the soldier for himself. Never put a young soldier in the guard-house if it is possible to avoid it. Many a young soldier gets started wrong by being kept in the guard-house with bad men who are confined there because they can be managed in no other way.

4. As far as possible use company punishment. Men respect an officer more

who is able to handle his men without having to use outside means for discipline. To be able to run your company yourself is a great asset; be careful not to lose it.

5. Give short talks to men on subjects which they ought to know. Be sure the talks are short. Have something to say; say it; then stop.

6. Teach the soldier to have proper respect for his uniform.

7. Be extremely careful about your manner in dealing with soldiers; they are entitled to a respectful and patient hearing. Some officers seem to go on the theory that military efficiency consists in a loud voice and an impatient manner.

8. Don't attempt to gain cheap popularity by unofficerlike acts. Soldiers are not slow to size up an officer. They soon learn whether his interest in his men is feigned or real. They respect and admire the officer who requires a strict performance of duty. The true rule for handling soldiers is: Don't nag them; don't neglect them; don't coddle them.

9. Put responsibility for the squad squarely upon the shoulders of the corporal of the squad. Make him look after every detail—instruction, equipment, dress, neatness, general appearance, behavior.

10. Train the lieutenants and the sergeants to have an interest in company administration by supervising details. When anything goes wrong call in the sergeant and the corporal whose place it was to see about it. If Private Smith has grease spots on his coat and long hair at inspection, see why Corporal Jones and Sergeant Brown had not attended to those details.

11. Look carefully after the company mess. Much of the discontent in a company is founded upon dissatisfaction with the food and the way it is served.

12. Do everything possible to provide legitimate amusements and recreation. Young men cannot be kept contented within the bare walls of the barrack building. Baseball and out-of-door sports afford a good opportunity for the activities of young lieutenants.

13. If there are many new men in the company say a word or two to them about writing home to parents, and to caution them in regard to homesickness.

14. Be an optimist; cultivate that habit. There are some men who always see their troubles with great clearness. They are always afraid that things will not turn out just right. The man who is an optimist is like a breath of fresh air. He cheers all who come around him. One of the great sayings of Lord Nelson was: "I am not come forth to find difficulties but to remove them."

15. Try not to become a critic or a "knocker." When once a matter has been settled put your energies into the question of how you can best carry out both the letter and the spirit of the order.

16. If any man deserts from your company and you have never spoken to him in warning against committing that crime the blame for his desertion is partly yours. You have not done your duty.

17. If any company officer cannot call every man of his company by name he should get busy at once.

18. The officer who wants to succeed must be loyal to those above him. He is then on solid ground for expecting it from those below him.

19. Don't let a new made corporal feel that he has a permanent job regardless of effort. Establish competition between squads. Promote the corporal who makes the best showing and relieve at once those who are worthless.

20. The value of any officer to the government depends in large part upon how much attention he gives to duty. It is not how much ability an officer has but how well he uses what he does have that determines his value to the government.

21. It is the duty of the officer to prove his title and his worth by exhibiting superior knowledge. No organization will long respect an officer who has not the knowledge properly to instruct his men.

22. Remember Napoleon's maxim, that in war the moral is to the physical as three to one. Strive to arouse a proper spirit in the men individually and in

the organization as a collective unit. Not much success can be hoped for unless the proper spirit is aroused.

23. Listen attentively to suggestions of subordinates. Invite recommendations for improvements. This is a good way to create and maintain the interest of subordinates.

24. Encourage initiative on the part of subordinates. Do this by apportioning or assigning work. Let them do the work under your own supervision.

25. Justice and promptness are the foundations of military discipline and military efficiency. It takes a level headed man to maintain discipline and yet have every man feel that he has had a square deal.

26. Teach the soldiers to be neat in person and clean and sober in their lives. Force of example is the greatest of all aids in this respect.

27. Prohibit the use of dirty, vulgar language. Punish offenders and see that your instructions are carried out.

28. There is something to be done: the *efficient officer* sets to work earnestly and loyally to do it, overcoming obstacles as he goes along. The *inefficient officer* either does nothing, or spends his time discussing difficulties or in suggesting some other plan more to his liking.

MILITARY COURTESY AND DISCIPLINE

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MILITARY COURTESY AND DISCIPLINE

CHAPTER I.

MILITARY COURTESY.

Necessity for Courtesy. In all walks of life men who are well-bred and gentlemanly are always respectful and courteous to others. In civil life this courtesy is shown by the customs of raising the hat to a lady, shaking hands with friends, and greeting people with a nod or a friendly "good morning," In the army courtesy is even more necessary than in civil life. Military courtesy includes most of the courtesies of civil life and others that are peculiarly military. If you are ever in doubt, do what you think a gentleman would do in the situation. You may thus show some ignorance of the military way of doing things, but you will show also that you are courteous. The Army Regulations say: "Courtesy among military men is indispensable to discipline; respect to superiors will not be confined to obedience on duty, but will be extended on all occasions."

The salute and other forms explained are the more usual but not the only forms of military courtesy. Courtesy in manner and tone of voice is of equal importance. But do not get the idea, which some civilians have, that the observance of military courtesy is the most important duty of a military man. The well-trained soldier is courteous almost unconsciously and not through studied effort. He "takes it in his stride."

General Information.

History of the Salute. In the old days the free men of Europe were all allowed to carry weapons, and when they met, each would hold up his right hand to show that he had no weapon in it and that they met as friends. Slaves or serfs, however, were not allowed to carry weapons, and slunk past the free men without making any sign. In this way the salute came to be the symbol or sign by which soldiers (free men) might recognize each other. The lower classes began to imitate the soldiers in this respect, and thence crept into civil life the custom of raising the hand as one passed an acquaintance. To this day armies have preserved their salute, and when correctly done it is at once recognized and never mistaken for that of the civilian. All soldiers should be careful to execute the salute exactly as prescribed. It is the symbol and sign of the military profession.

The rendering of the salute is no more an acknowledgment of inferiority than is the act of speaking first to an acquaintance. Regulations require that the salute be rendered by both the senior and junior. It is but natural that the junior should salute first.

The military salute is a respectful salutation exchanged between two self-respecting members of the same honorable profession. An attempt to evade it indicates that a man is ashamed of being a soldier, or that he has not the right idea about the salute.

The salute is probably the chief mark by which we can distinguish the well-trained and well-disciplined soldier. A soldier who renders the required salute punctiliously and proudly displays the right spirit. He can be counted upon to perform all his duties in the same spirit. Experience has proven that exceptions to this are rare.

How to Salute. The proper way to salute with and without arms is explained in the course in Drill.

There is sometimes discussion as to whether the head should be raised when saluting. It is required that the head be *erect*; if it is not in that position there is no doubt that it should be raised until it is erect. However, there is no authority for raising the head more than that, though the eyes should be raised if the person saluted is on a higher level. When not armed with the rifle or when not carrying the drawn saber, the hand salute is always given when a salute is prescribed. Enlisted men, when in a vehicle, use the hand salute, whether armed or unarmed.

The salute is never given while at the double time or, if mounted, while at a gait faster than a "walk." Always come down to "quick time" or the "walk."

When armed with a rifle, the rifle salute at either the right shoulder, trail or order, is given. Actually, there is no regulation which requires that the rifle salute at the right shoulder, only, be given when out of doors (the regulation was rescinded many years ago), but it is usually customary that this be done. It *is* prescribed that the salute at the trail or order arms be given when indoors.

Whom to Salute. The compliment of the salute is paid to officers of the Regular Army, Navy, Marine Corps, and to officers of the Organized Reserves

FIG. 1

Soldier salutes when officer who is approaching reaches position shown above.

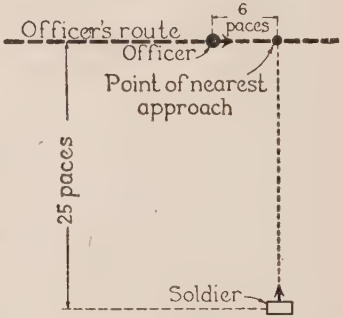


FIG. 2

Soldier standing nearby salutes when officer who is passing by reaches position shown above.

Plate 1. Saluting at 6 Paces or 6 Paces from Nearest Point of Approach.

and National Guard in uniform. In greeting ladies there is no prescribed or uniform practice. Some officers raise the headdress (the same as civilians) while others salute. Many officers greet their civilian male friends by giving the salute.

Enlisted men are not required to salute other enlisted men except where the salute is required while rendering a report.

Saluting Distance. Saluting distance is that within which the salute is rendered. Usually it does not exceed 30 paces. It is the distance within which recognition is easy, that distance within which friends in ordinary life would recognize and greet each other. Note well the above and you will have no difficulty in deciding when to salute.

The salute is begun when 6 paces from the person to be saluted or, in case you do not come that near, 6 paces from the point of nearest approach. (Plate 1.)

COURTESIES TO INDIVIDUALS.

When Salute is Rendered. The salute is rendered whenever a person entitled thereto comes within saluting distance, except as noted hereafter.

Certain exceptions to the foregoing rule are noted in succeeding paragraphs. In general it is not intended that the salute should be an annoyance to either party and it would not be given under circumstances where it would cause annoyance. If in doubt, salute, and you will not be wrong.

Returning Salutes. When several officers are together and a salute is rendered, all entitled to the salute return it. If the officers are not in formation all are entitled to a salute from a soldier; but if marching in formation (for example, a regiment on a practice march) and a salute is given the commanding officer, the other officers do not return it, as they are not entitled to a salute in this case.

It is as great a breach of military courtesy for a senior, through lack of attention, to fail to return a salute, as it is for a junior to fail to give the salute in the first place.

When in Civilian Clothes. A soldier salutes an army officer when he recognizes him even if he or the officer or both are in civilian clothes.

Covered or Uncovered. Salutes are exchanged in the same manner between individuals whether covered or uncovered (headdress on or off).

When to Salute but Once. Where no conversation is held, an officer having been once saluted is not again saluted if he remains in the immediate vicinity.

Saluting Twice. Except when in formation, a soldier spoken to by an officer, or before addressing an officer, salutes, and again salutes when the officer leaves or the soldier is dismissed. The above rule holds whether indoors or out, covered or uncovered.

Who Salutes First. The junior salutes first except on certain occasions where reports are made, when the reporting officer salutes first. Example: During the formation of a battalion for parade a captain reporting a company salutes the battalion adjutant first, even though the latter be a first lieutenant.

Under Arms. On some occasions, referred to hereafter, the headdress is removed as a courtesy. This is not done if the soldier is "under arms." He is not only under arms when armed with rifle or pistol, but is equally so when wearing cartridge belt or other equipment pertaining directly to a weapon. An officer wearing a Sam Browne belt without arms attached is not "under arms."

However, even when under arms, the headdress is removed when in attendance before a court or board (except by a sentinel guarding a prisoner), at official receptions, at places of divine worship, or on informal occasions indoors.

In Front of Barracks. Assume that a number of soldiers are standing or sitting in front of barracks or in company street in camp, covered or uncovered. An officer approaches. The first to perceive him calls "Attention," whereupon all come to attention and salute. It is customary for all to salute at about the same time. "Attention" should be called when the officer is 9 or 10 paces from the man nearest him so that the salute may be rendered when he is 6 paces from the nearest man.

Reporting to an Officer. A soldier reporting to an officer in his office, knocks, enters when told to, with headdress (hat or cap) off (unless under arms), salutes, and when he has finished his business, salutes and departs.

A soldier not under arms, uncovers on entering any room where an officer is present.

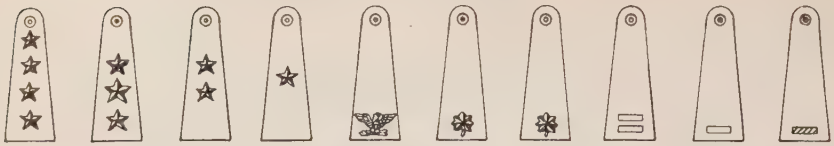
Driving a Wagon. The driver of a horse-drawn vehicle, not in motion, salutes unless it is necessary for him to use two hands to control his team. He does not salute if the vehicle is in motion.

Driving a Motor Vehicle. The driver of a motor vehicle does not salute if the vehicle is in motion; if it is stopped, he salutes without rising from his seat. A soldier riding in a vehicle (not its driver) salutes on the same occasions as when walking. He does not rise or get out to salute officers, even if the vehicle is not in motion.

Public Places. In public conveyances, such as trains and street cars, and in public places, such as theatres and dance halls, salutes are omitted.

INSIGNIA OF RANK, OFFICERS' SHOULDER LOOPS

(All silver, except as noted)



General | Lieutenant General | Major General | Brigadier General | Colonel | Lieutenant Colonel | Major (Gold) | Captain | First Lieutenant | Second Lieutenant (Gold)

COLLAR OR LAPEL INSIGNIA, BRANCH OR ARM OF THE SERVICE

Infantry | Infantry (Tanks) | Cavalry | Cavalry (M. G. Squadron) | Field Artillery | Coast Artillery Corps

Corps of Engineers | Air Corps | Signal Corps | Chemical Warfare Service | Quartermaster Corps | Ordnance Department | Finance Department

Adjutant General's Department | Inspector General's Department | Judge Advocate General's Department | General Staff | Militia Bureau | Aid to (Brigadier) General | Cadet West Point

Medical Corps | Army Nurse Corps | Dental Corps | Medical Administrative Corps | Veterinary Corps | Chaplain | Jewish Chaplain | Military Police

AVIATION BADGES

Warrant Officer | Military Intelligence Officers' Reserve Corps | Airplane Observer | Airplane Pilot | Airship Pilot

CHEVRONS, NON-COMMISSIONED OFFICERS

Master Sergeant | Technical Sergeant | First Sergeant | Staff Sergeant | Sergeant | Corporal | First Class Private

PLATE 2.—Insignia of Rank and Arm of the Service.

Accompanying a Senior. When a junior walks, rides or sits with a senior he takes position abreast of and to the left of the latter, except that a soldier accompanying an officer, both mounted, rides about one horse length in rear.

A junior walking with a senior keeps in step with him.

Courtesy in military life causes juniors to give way to seniors under the same circumstances as when, in civil life, young men give way to their elders and gentlemen give way to ladies. Thus a junior would stand back and allow a senior to be the first to enter a doorway, or a vessel, a junior would offer his seat in a street car to a senior who could not find a seat, and so on.

It is prescribed that on official occasions, unless otherwise directed by the senior officer present, officers will enter an automobile, small boat, or other conveyance, in inverse order of rank (*i. e.*, the junior first), the right rear seat being reserved for the senior. In leaving the conveyance this order is reversed, the senior being the first to leave. Where appropriate this rule may also be observed on unofficial occasions.

Officers in Automobiles. Officers riding in automobiles or other vehicles, not public conveyances, are saluted as if walking. But an officer is not saluted if he is the driver of a vehicle in motion.

Ruffles and Flourishes. On prescribed occasions special honors are paid persons of high rank. The command presents arms, the drums of the band giving "ruffles" and the buglers sounding "flourishes." When arms are presented, officers and men who are not in formation and are in view and within saluting distance, salute and remain in the first position of the salute until the end of ruffles and flourishes, or, if none, until order arms.

In Ranks. Ordinarily, a soldier in ranks pays no individual compliment to any officer. If addressed by an officer while at "rest" or "at ease" he comes to attention while the officer is speaking to him, but does not salute. He resumes the rest or at ease when the officer has finished.

In the Mess Hall. When soldiers are eating in the mess hall and an officer enters, the first one to perceive him calls "Attention," whereupon all stop eating but do not rise. They remain seated at attention until the officer leaves the room or directs otherwise. On this and similar occasions the officer will usually command "Rest," or "At ease," after the men have come to attention. If one of the soldiers is addressed by the officer, he rises and stands at attention.

At Work. A soldier at work (for example, digging a ditch) does not salute unless addressed by an officer. If so addressed he stops work, comes to attention and salutes, again saluting when the officer leaves. Soldiers at work in a kitchen or other place about to be inspected are called to attention (by the noncommissioned officer accompanying the inspector, or by the first man to perceive the inspector) upon the approach of the inspecting officer and remain at attention until the officer leaves, unless he directs otherwise.

In the transaction of ordinary business between an officer and an enlisted man seated at work in an office or shop the man is not required to rise.

Playing Games. A baseball game or other outdoor sport is not interrupted upon the approach of an officer, whatever his rank, nor do the spectators come to attention or salute.

In Squad Room or Tent. When soldiers are in a squad room or tent and an officer enters, the first to perceive him calls "Attention," whereupon all rise, uncover (unless under arms) and stand at attention until the officer leaves or commands "Rest," or "At ease."

One knock before entering a room is considered the "official knock" and is the signal for those within to come to attention. It is now seldom used.

Seated. An enlisted man, if seated, rises at the approach of an officer, faces toward him, stands at attention and, if out of doors, salutes. "Out of doors"

is construed to include the interiors of large buildings, such as a gymnasium, riding hall or drill hall.

In a Class Room. An enlisted man conducting a class calls the class to attention upon the entrance of an officer. The class rises and stands at attention and remains so until the officer orders "Rest," or directs the instructor to do so. The class then resume seats. If the officer remains for some time the class is again brought to attention when he leaves. An officer conducting a class calls the class to attention upon the entrance of an officer of higher grade than himself. The procedure is the same as when an enlisted man is the instructor. However, to avoid frequent interruptions, it is usually prescribed that a class conducted by an officer shall be called to attention only upon the entrance of the commanding officer, or general officers, either those stationed on the post or visiting.

In a Church. No compliments are paid to any officer entering any place of divine worship.

In Library or Recreation Room. Soldiers in a library, reading room, pool room, post exchange, Y. M. C. A., or other recreation room, do not come to attention upon the entrance of an officer unless the officer so directs. If the officer is making an inspection of such a place the non-commissioned officer accompanying him calls "Attention," as they enter the room. Any junior officer who may be in the room should also come to attention in such a case.

In a Theater, Dance Hall or other Amusement Resort. No compliments are paid to officers who enter a theatre or dance hall, where soldiers are engaged in recreation, whether or not such places be on a military reservation, and whether or not civilians are present.

While Leading an Animal. Salutes are not exchanged between an officer and an enlisted man if either is leading an animal or "standing to horse."

Indoors. Salutes are not ordinarily exchanged between officers and enlisted men indoors, except when addressing each other. "Indoors" means in halls or corridors, offices, kitchens, orderly rooms, amusement rooms, bath rooms, or dwellings.

Mounted. Except in the field under campaign or simulated campaign conditions, an officer or soldier who is mounted, dismounts when talking to a superior officer if the latter is not mounted.

Troops in Formation. The following examples illustrate the prescribed courtesies rendered by a unit in formation:

a. Soldiers are in ranks, at rest or at ease, non-commissioned officer in command. An officer passes in front of the unit. It is called to attention and the non-commissioned officer salutes. If the officer passes in *rear* of the unit it is brought to attention while he is opposite the post of the commander. The latter faces to the front but does not salute.

b. Soldiers are in ranks at rest or at ease, officer in command. An officer of grade equal or junior to officer in command approaches; the officers exchange salutes, the organization remaining at rest or at ease. If an officer of grade above that of the commander approaches, the procedure is that explained under "*a,*" above.

c. An organization is in formation, marching at route step, officer in command. An officer of grade equal or junior to commander passes; officers exchange salutes, organization not being called to attention. If the officer who passes is of grade above that of the commander, the organization is called to attention and the officers exchange salutes.

d. A unit is marching at route step with a non-commissioned officer in command. It passes an officer of any grade; the non-commissioned officer calls the unit to attention and salutes.

e. Detachments are marching at route step, non-commissioned officers in command. When they pass each other they are not called to attention and salutes are not exchanged by detachment commanders. This does not apply to the old and new guards after guard mounting.

f. As a rule no courtesy is paid if a detachment is drilling, or is in the field under campaign or simulated campaign conditions. No honors are paid by troops in trenches; when on the march they may be called to attention. Troops on service of security render no honors whatever. Outpost duty is an example of this.

Courtesies not to be Omitted. Sometimes there is a tendency to look upon the prescribed forms of courtesy as a nuisance, and to neglect or omit them. This tendency should be discouraged. It is with good reasons that our regulations declare that courtesy amongst military men is indispensable to discipline. An organization which neglects the forms of courtesy, promptly and unavoidably neglects its serious duties. The manner in which an organization observes the forms of courtesy is the best single indication of its discipline and general efficiency. In addition to its military value, courtesy is part of *friendship.* And the friendship of our fellows is what we chiefly live for. It is worth more than wealth and power. It is the most important thing in life. A man who is discourteous makes a poor officer and a poor soldier. He will have few friends and so will miss the best things in life. It is a wise course therefore to be courteous.

It is well also to remember that, as our regulations say, courtesy should be our rule on all occasions. Courtesy does not consist simply in following the forms herein prescribed or the many others which are matters of custom in civil and military life. True courtesy is the spontaneous demonstration of a feeling of kindliness, sympathy and respect for our fellowmen, which beams forth at all times and under all circumstances from the man who is a gentleman at heart.

Questions.

1. Give the history of the military salute.
2. Is the salute given while at the double time?
3. Who is entitled to a salute from a soldier?
4. What is saluting distance?
5. Are salutes exchanged between an officer and an enlisted man if both are in civilian clothes?
6. Describe the courtesy paid an officer when he approaches a group of men in a company street in camp.
7. Describe a soldier's actions when he reports to an officer in his office.
8. On which side does a junior walk when he accompanies a senior?
9. What courtesies are paid to officers in vehicles?

Practical Exercises.

Exercise 1. Have each member of the section or class march past the instructor and give the hand salute. See that it is executed properly and at the proper point. Have men illustrate the rifle salutes.

Exercise 2. Assume situations to demonstrate:

a. That ordinarily the salute is rendered whether covered or uncovered.

b. That the junior salutes first.

c. How men in front of barracks are called to attention and salute.

d. That a soldier salutes twice when spoken to by an officer.

Exercise 3. Designate certain students as senior officers and others as juniors and demonstrate the proper positions occupied by juniors when accompanying seniors.

CHAPTER II.

CONVERSATION WITH OFFICERS.

Use of Third Person. In replying to a question asked by an officer a soldier uses the word "Sir" at the end. Example: Q. "What is your name?" A. "Private Brown, Sir." In asking a question or making a report the soldier uses the word "Sir" at the beginning. Example: "Sir, Private Brown reports as orderly." In addressing an officer the third person may be used instead of the second. Example: "Sir, the lieutenant's horse is ready," or "Sir, your horse is ready." In making a report the third person is always used instead of the first: "Sir, Private Brown reports as orderly." Not, "Sir, I report as orderly." It is customary for the third person to be used instead of the first in an introductory statement (the reason being that it informs the officer as to the name of the soldier speaking): "Sir, Private Brown has the permission of the first sergeant to speak to the company commander."

Use of Titles. From the examples in the foregoing paragraph it is seen that a soldier uses his title in speaking of himself to an officer, as: "Private Brown" and not "Brown." He uses the title of another enlisted man in speaking of him to an officer, as: "Corporal Brown," "Sergeant Smith," or "Private Jones." Example: "Sir, Corporal Brown said that he was going to town." An enlisted man addresses or refers to all officers by their military titles. He similarly addresses all non-commissioned officers when on duty, and when off duty, in case they are senior to him. There are exceptions to the latter (when off duty) as when two non-commissioned officers, though of different grade, are of about the same age and length of service and are intimately acquainted.

It is customary for an officer, when speaking to or of an enlisted man (formally or informally) to use the man's title unless he be a private, in which case he usually calls him by his last name, as "Jones, report here." (Jones is a private.) "Sergeant Smith, report here." In more formal conversation, as with the commanding officer, he would probably say "Private Jones." Example: "Sir, Private Jones of Company A is not in barracks."

On formal occasions all officers address or speak of other officers, whether junior or senior, by their military titles, especially if enlisted men are present. At other times, on or off duty, officers *may* be addressed or referred to by their military titles. But on such occasions an officer often addresses or speaks of other officers of the same or lower grades by their last names. Senior officers are usually addressed or referred to by their titles (informally) but this is not invariable, depending on the relative age and length of acquaintance of the individuals concerned.

It has long been the custom in the army to address officers below the grade of captain as "Mister," or "Doctor" (if in the Medical Corps). A lieutenant should be presented by his title, thus: "General Smith, this is Lieutenant Jones." But thereafter he is addressed as "Mr. Jones" or "Doctor Jones," except when speaking in the presence of enlisted men, when the military title should be used.

Chaplains are addressed as "Chaplain" and warrant officers as "Mister" by both officers and enlisted men. Chaplains of the Roman Catholic faith are addressed by some as "Father."

Delivering Messages. In delivering a message from a senior to a junior an orderly may present the compliments of the senior, although this practice is now obsolescent. This is not done where the message is from a junior to a senior. Examples: To the commanding officer: "Sir, Captain Smith stated that

he would report to the commanding officer in 5 minutes." To Captain Jones: "Sir, the commanding officer presents his compliments and would like to see Captain Jones at headquarters right away." After delivering a message, an orderly should usually report the delivery to the one sending it. Example: "Sir, the captain's message to the commanding officer has been delivered." An officer sending a message should satisfy himself that the messenger understands the message by asking "Any questions?" or by causing him to repeat the message. Messages of more than one short sentence should be in writing. A messenger delivering a written message salutes, and hands the message to the officer, saying as he does so, "From the commanding officer, Sir," or "From Captain Jones, Sir."

Answering the Telephone. In answering the telephone a soldier should use a moderate and respectful tone; he never knows who is at the other end of the line, but whoever it is he should be courteous to him. He should give the organization or place, then his title or name. Example: "Company A, company clerk speaking." "Post exchange, Private Brown speaking." The above is not prescribed but is business-like and sensible.

MISCELLANEOUS.

Permission of First Sergeant. It is customary for soldiers to secure the permission of the first sergeant before speaking to the company commander, or of the company commander before speaking to senior officers. There are many small details which the first sergeant can handle. But if a soldier desires to speak in person to the company commander it is the duty of the first sergeant to inform the company commander. Such permission should seldom be denied. It is essential to good discipline that every soldier in a company know that he has the right to appeal to his captain.

Courts-Martial. The following example illustrates a soldier's conduct when a witness at a court-martial, general or special: The judge advocate calls for the witness, "Private Smith." Under present regulations (Par. 55, AR 600-40) side arms are prohibited, and the proper procedure would be to remove headdress before entering the room. The witness salutes the president of the court. If gloves have been prescribed by the local authorities the right glove is removed by the witness before he is sworn. He does not wait to be told to do this. When the judge advocate says: "You will be sworn as a witness in this case," the witness raises his right hand above his head, palm to the front and when the oath has been repeated by the judge advocate, he replies: "I do" or "So help me God." He sits down in the chair indicated by the judge advocate. In answer to the question by the judge advocate: "Do you know the accused, if so state who he is," he answers: "I do, Private John Doe, Company A, 6th Engineers." The witness then answers all other questions asked and when excused rises, salutes the president of the court and leaves the room.

At the Pay Table. The company is formed in the order in which names appear on the payroll. It is customary for the men to be required to wear side arms. Each man, as his name is called, answers "Here" in a loud clear tone, steps up to the table, salutes the paymaster, counts his money as the paymaster spreads it out before him, but does not touch it until the paymaster has finished counting it and has pushed it toward him. The paymaster does not return the salute of the soldier as he is too much occupied with his duties.

Military Funeral. The following War Department regulation explains in detail courtesies rendered by individuals at military funerals or when passing the remains of an officer or soldier: At a military funeral all persons in the military service, in uniform or civilian clothes, will stand at attention, uncovered, and hold the headdress over the left breast while the casket is being carried from the caisson to and lowered into the grave, while taps is being sounded,

and during the service at the grave. During the prayer they also bow their heads. In inclement weather the headdress may be raised and held over the head.

While the casket is being carried from the house to the caisson, from the caisson to the church, and from the church to the caisson, they will stand at attention, uncover, and hold the headdress over the left breast.

They will salute the casket as it passes, in any military funeral at any time or place, by facing the casket, assuming the position of attention, uncovering, and placing the headdress over the left breast.

The active pallbearers, while carrying the casket, will remain covered; at other times they will conform to the foregoing procedure.

CUSTOMS OF THE SERVICE.

Origin and Nature of Customs. Over the long period of our army's existence certain customs and practices have grown up through the force of necessity; others were handed down from the British Army in which many colonials served. Some of these customs have stood the test of time and are more effective and binding today than are some of our regulations; some of them have been incorporated into the Army Regulations.

These unwritten laws of the army derive their force from the necessity and consent of those who comprise the service. To be recognized, they must be of long standing and uninterrupted usage; they must be reasonable and consistent, like principles of common law.

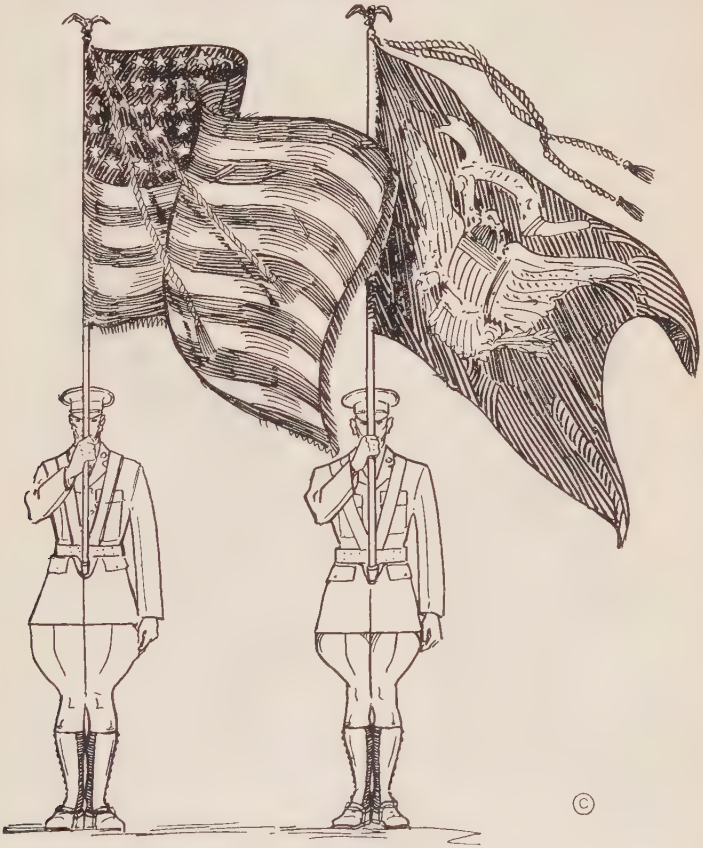
The customs of the service (customs of war as mentioned in the oath taken by members of a court martial) vary greatly as to subject matter—ranging from the trivial to the serious. Usually, the breach of one of these customs merely bands the offender as ignorant or ill-bred; but there are some customs the violation of which would bring official corrective measures.

Most of these customs are the same as or very similar to the "rules of polite society" in civil life. Any officer or soldier who is naturally a gentleman will easily learn these customs if he keeps his eyes and ears open. But he may be spared some embarrassments if he is acquainted in advance with the regulations and customs with which he will first come in contact. With a good start he should then easily make his way.

An officer arriving at a station to which he has been assigned reports at once to the commanding officer at post headquarters. At this time he may be conducted into the presence of the commanding officer. He will be given his assignment to duty and quarters and such other information as may be of use to him. Thereafter he reports at the headquarters of his next immediate superior, company, battalion or regimental headquarters.

If he has not seen the commanding officer in person on his arrival he should promptly repeat the call at his office. He should also call socially on the commanding officer and his immediate commanding officer (if other than the commander of the post or station) at his quarters. The period within which these calls should be made varies from 24 hours to one week, depending on the size of the post and the number of officers arriving at or near the same time. He should make similar social calls on any general officers (other than the commanding officer) and intermediate commanding officers stationed on the post. *Example:* A lieutenant arrives on a regimental post and is assigned to Company A for duty, but not as company commander. The regimental commander (who in this case commands the post) is the commanding officer. The captain of Company A is the lieutenant's immediate commanding officer and the commander of the 1st Battalion (Company A is in the 1st Battalion) is his intermediate commanding officer. All other officers will make a first call on the new arrival. If there be a mistress of his household (wife, mother, adult daughter, or sister), visiting officers will be accompanied by the mistresses of their households.

The obligation to make a first call is usually in direct proportion to the official relations of the officers concerned. For example: A lieutenant should call promptly upon a newly arrived captain of his own company, a medical officer should call promptly upon a newly arrived medical officer. All social calls should be returned within a reasonable time. On large posts, such as service schools, where officers are frequently arriving and departing, especially where they arrive in large numbers, the individual call on all new officers may be a physical impossibility. In such cases the commanding officer may return the calls (which should always be made upon him) by a general reception or other entertainment to all the newly arrived officers and their families. The older inhabitants may tender a general reception to the new arrivals, in lieu of the formal first call. At summer encampments, where the number of officers is



National color. Regimental color.

Plate 3. National and Regimental Colors.

great and the tour of duty short, and where families usually are not present, formal social calls are usually omitted. In this case social courtesies are extended in the form of receptions, smokers, or dances.

All of this is based on practical common sense. An officer arriving at any post or station in peace or war, should never fail to pay his respects promptly to his commander. He should then observe or inquire concerning the social customs in vogue and conform to these customs.

THE FLAG OF THE UNITED STATES.

Its flag is the symbol of a nation and as such is held sacred by all loyal citizens. An insult to the flag is an insult to the nation.

Four different names for the flag of the United States, also known as the Stars and Stripes, are in use in the military service: Flag, color, standard, and ensign. In general, the term "flag" is applicable regardless of size and use, but the other three terms have special usages as follows:

A color is a flag carried by dismounted units.

A standard is a flag carried by mounted or motorized units.

An ensign is a flag flown on ships and small boats.

In the military service the general term "flag" is used only when none of the other terms are applicable. Ordinarily, when we speak of "flags" we do not mean colors, standards, or ensigns. (Plate 3.)

Display of the Flag.

It should be borne in mind that the national flag represents the living country and is itself considered a living thing.

The union of the flag is the honor point; the right arm is the sword arm and therefore the point of danger, and hence the place of honor. The staff edge of

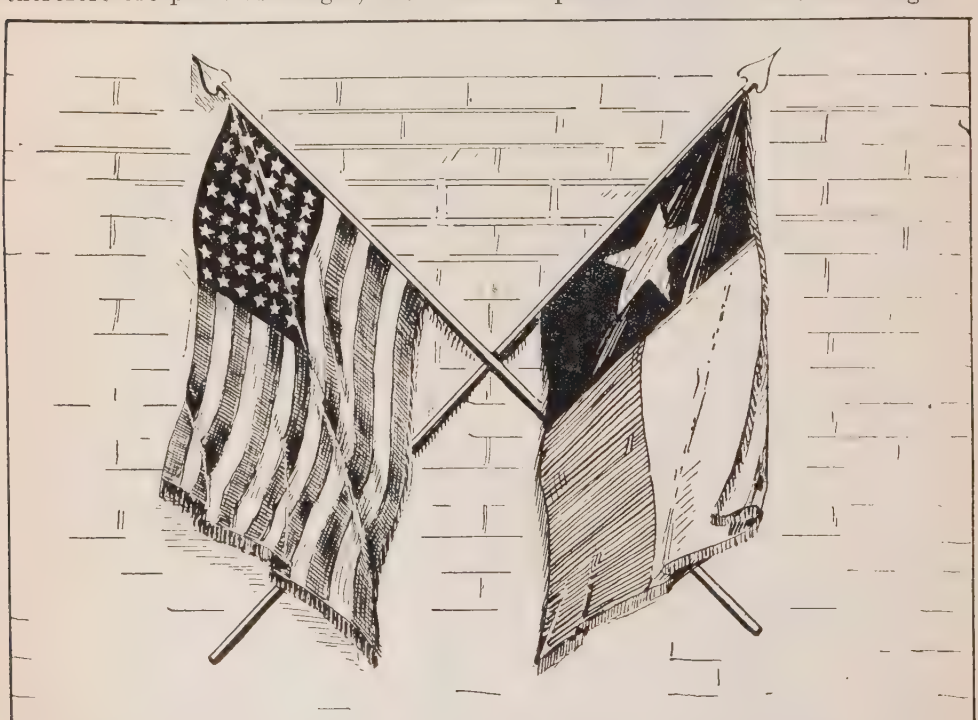


Plate 4. The National Color Displayed Against a Wall with Another Flag.

the flag is the heraldic dexter or right edge. When the national flag is carried, as in a procession, with another flag or flags, the place of the national flag is on the right, *i. e.*, the flag's own right. (Plate 3). When the national flag and another flag are displayed together, as against a wall from crossed staffs, the national flag should be on the right, the flag's own right (the observer's left), and its staff should be in front of the staff of the other flag. (Plate 4.)

When a number of flags are grouped and displayed from staffs, the national flag should be in the center or at the highest point of the group. When the national flag is hung either horizontally or vertically against a wall the union should be uppermost and to the flag's own right, *i. e.*, to the observer's left. (Plates 5 and 8.) When displayed from a staff projecting horizontally or at an angle from a window sill or the front of a building, the same rules should

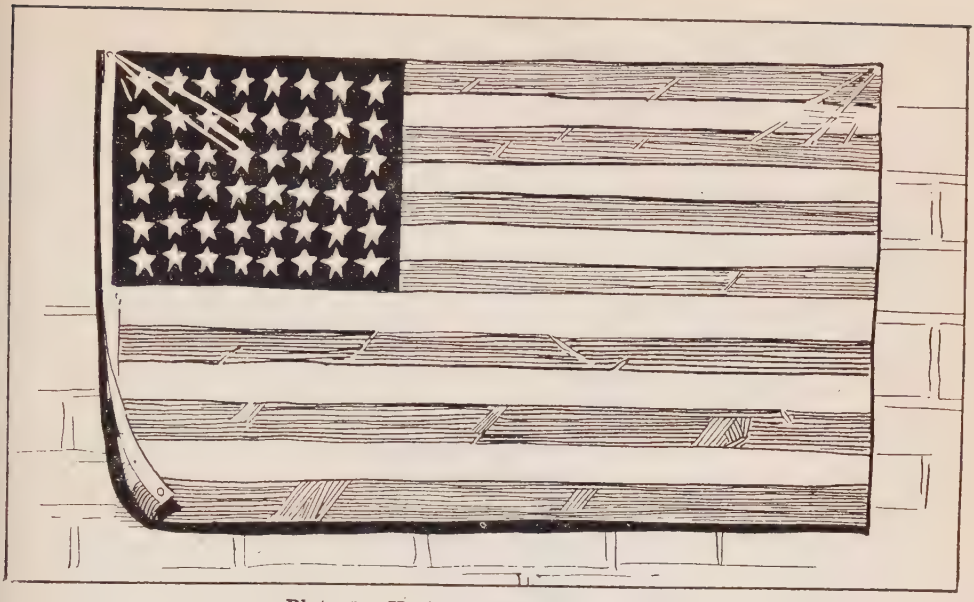


Plate 5. Horizontally Against a Wall.

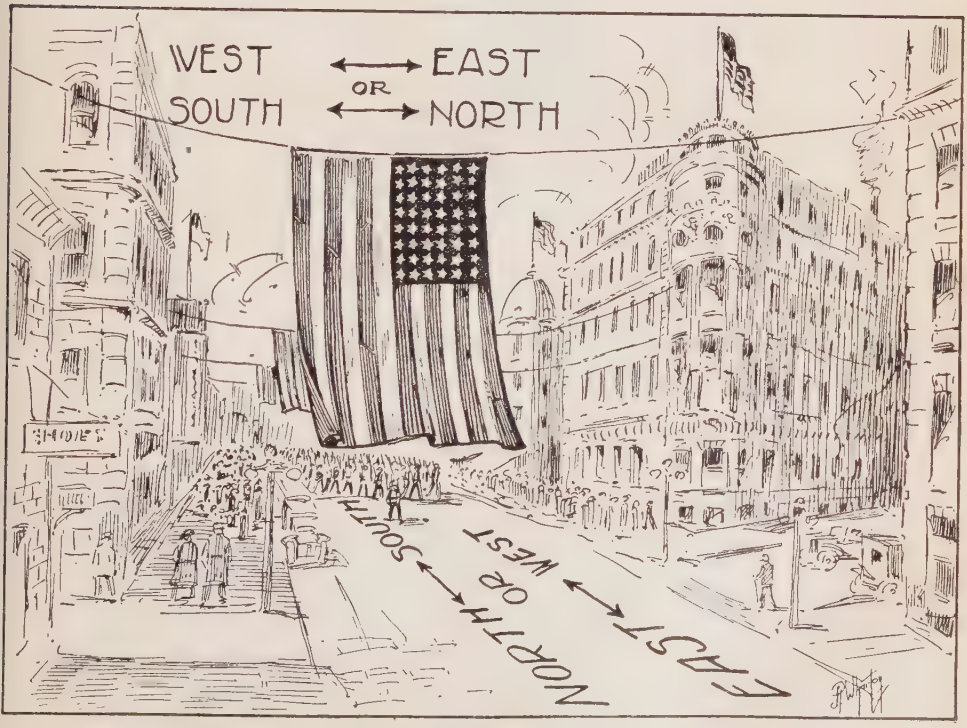


Plate 6. Between Buildings.

be observed; the union should go clear to the "truck," as the peak of the staff is called, unless the flag be at half staff. When the flag is suspended between buildings so as to hang over the middle of the street, a simple rule is to hang the union to the north in an east and west street and to the east in a north and south street. (Plate 6.)

When flags of states or cities or pennants of societies are flown on the same halyard (rope) with the national flag, the national flag must always be at the peak. (Plate 7.) International usage forbids the display of the flag of one nation above that of any other nation in time of peace. When the flags of two or more nations are to be displayed, they should be flown from separate staffs, or from separate halyards, of equal size and on the same level.

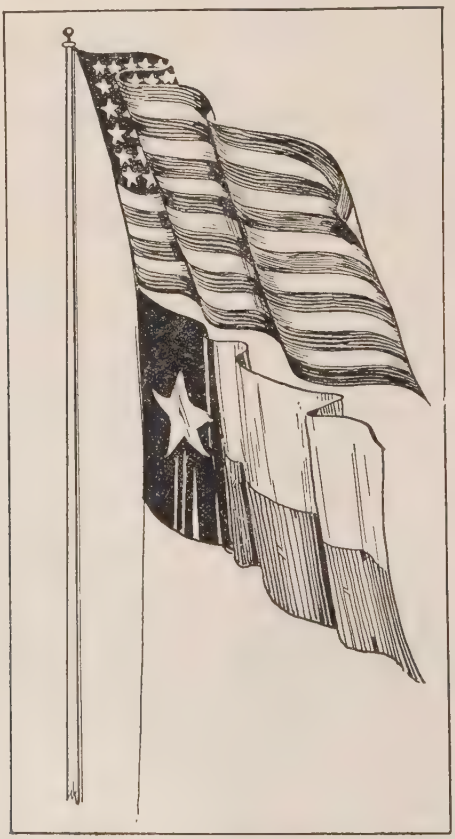


Plate 7. With Another Flag on a Halyard.

There is no federal law governing the subject, but the national flag, when not flown from a staff, should always be hung flat, whether indoors or out. It should not be festooned over doorways or arches nor tied in a bowknot nor fashioned into a rosette. When used on a rostrum, it should be displayed above and behind the speaker's desk. (Plate 8.) It should never be used to cover the speaker's desk nor to drape over the front of the platform. For this latter purpose as well as for decoration in general, bunting of the national colors should be used, and since the blue union of the flag always goes to the honor point, the colors should be arranged with the blue above, the white in the middle and the red below. Under no circumstances should the flag be draped over chairs or benches, nor should any object or emblem of any kind

be placed above or upon it, nor should it be hung where it can be easily contaminated or soiled. No lettering of any kind should ever be placed upon the flag. It should not be used for advertising purposes. It should not be used as a portion of a woman's costume nor of a man's athletic clothing. A very common misuse of the flag is the practice of embroidering it on cushions and handkerchiefs, and the printing of the flag on paper napkins. These practices, while not strictly a violation of any present federal law, certainly are lacking in respect and dignity and cannot be considered as evidence of good taste. The War Department has stated that it sees no objection to flying the flag at night on *civilian* property, provided it is not flown for advertising purposes.

When the flag is displayed at half staff it is first hoisted to the top of the staff and then lowered to the half staff position. Before lowering the flag for the day it is again raised to the top of the staff (and then lowered).

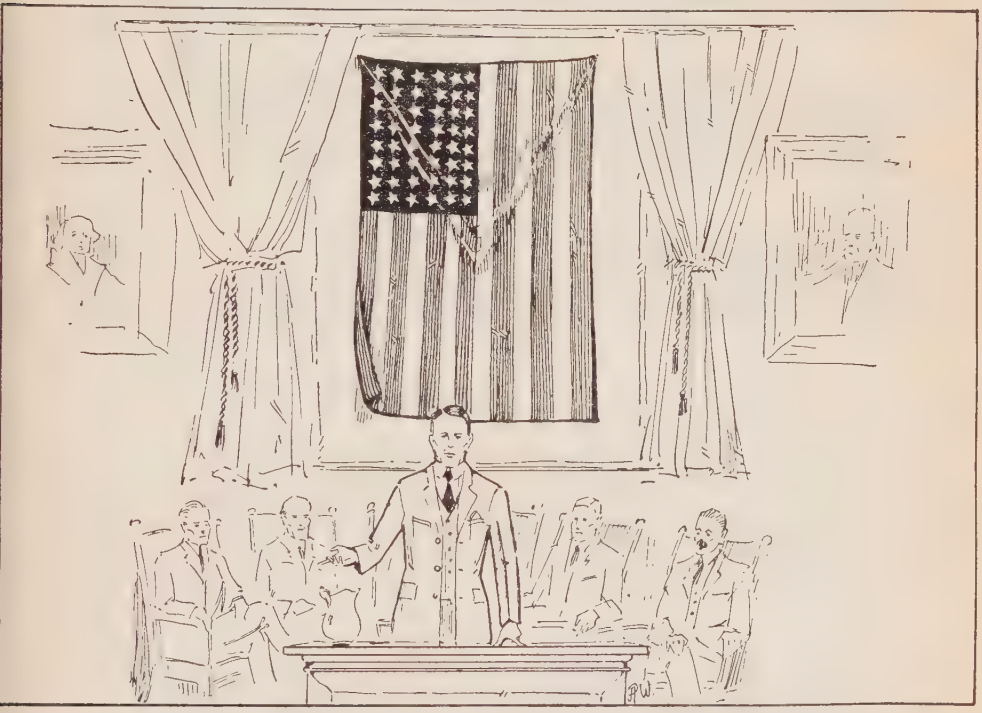


Plate 8. On a Speaker's Platform.

When the flag is lowered from the staff, no portion of it is allowed to touch the ground, either in lowering or folding. It is folded into the shape of a cocked hat. (Plate 9.)

When flown at a military post or when carried by troops, the national flag is never dipped by way of salute or compliment. The regimental color is dipped as a salute, when the reviewing officer has the rank of a general officer. This is done by lowering the pike (as the staff of a color is called) to the front so that it makes an angle of about 45° with the ground.

The national flag is used to cover the casket at the military funeral of present or former members of the Regular Army, Organized Reserves or National Guard. It is placed lengthwise on the casket with the union at the head and over the left shoulder of the deceased. (Plate 10.) The flag is not lowered into the grave and is not allowed to touch the ground.

Description. The flag of the United States has 7 red and 6 white stripes, emblematic of the original 13 states, and a union which consists of five-pointed

white stars on a blue field. The blue field is placed in the upper quarter. The number of stars is the same as the number of states in the union, which is now 48. Sizes of flags are:

Garrison flag	20 by 38 feet.
Post flag	10 by 19 feet.
Storm flag	5 by 9½ feet.
Colors	4⅓ by 5½ feet.
Standards	3 by 4 feet.

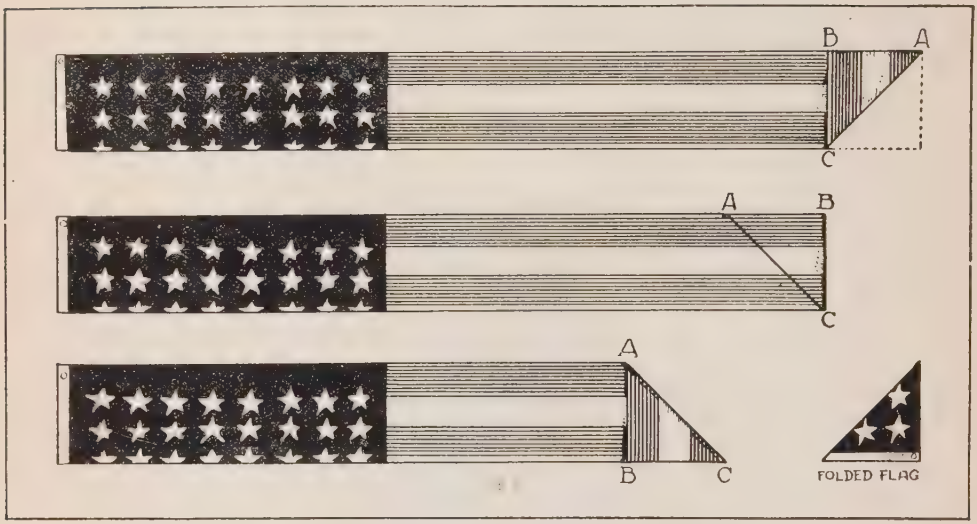


Plate 9. How to Fold the Flag.

National colors and standards are trimmed on three sides with a knotted fringe of yellow. A cord with tassel is attached to the pike below the spear head. *Regimental* colors and standards are of the color of the branch. Example: Infantry, blue; Engineers, red; Cavalry, yellow. They have fringe,

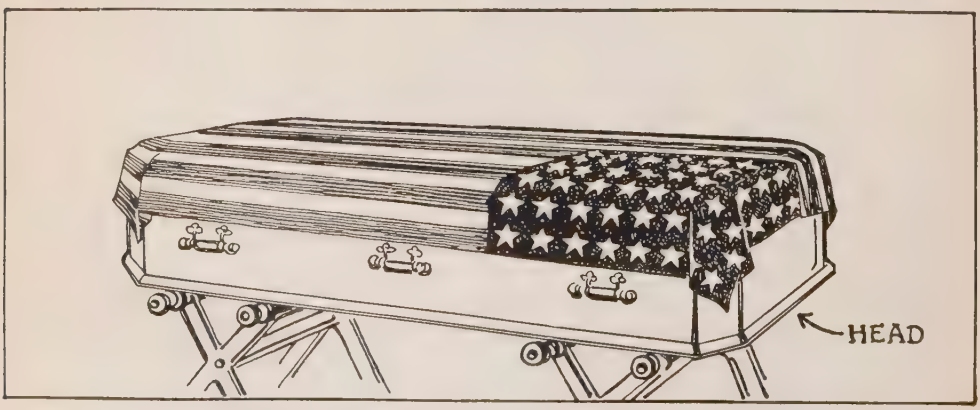


Plate 10. On a Casket.

cord and tassel. In the center is embroidered the regimental coat of arms or the regimental badge.

COURTESY TO THE COLORS.

The courtesies described hereafter are paid either colors or standards, national or regimental, although only "colors" are mentioned. No courtesy is

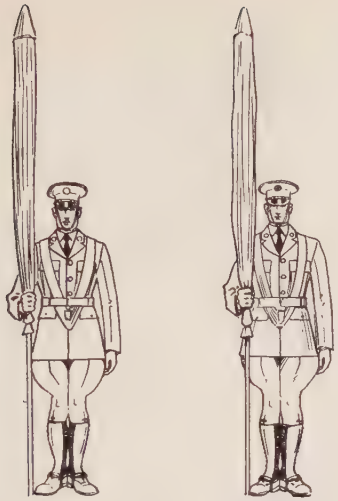


Plate 11. The Colors Cased.
They are never saluted when cased.

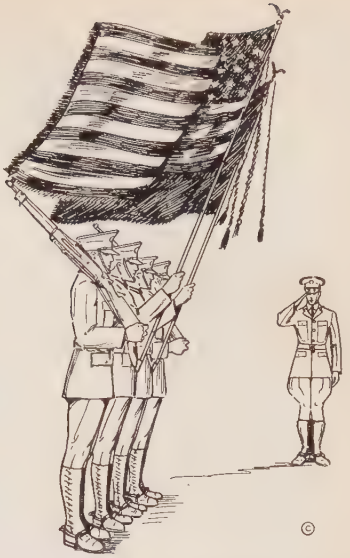


Plate 12. A Soldier Saluting
(Covered or Uncovered).

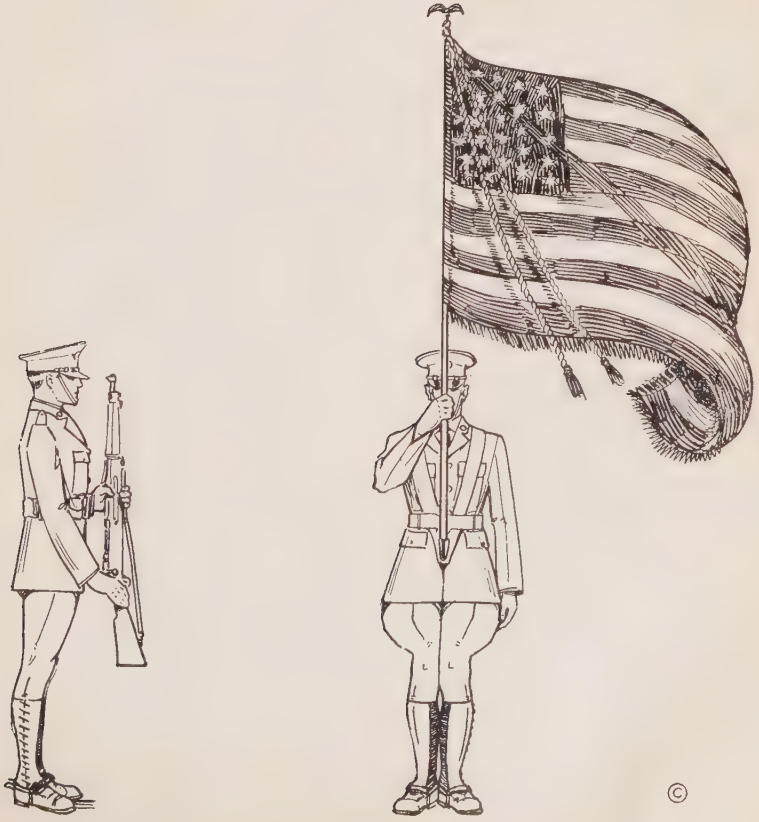


Plate 13. A Sentinel on guard Saluting the Color.

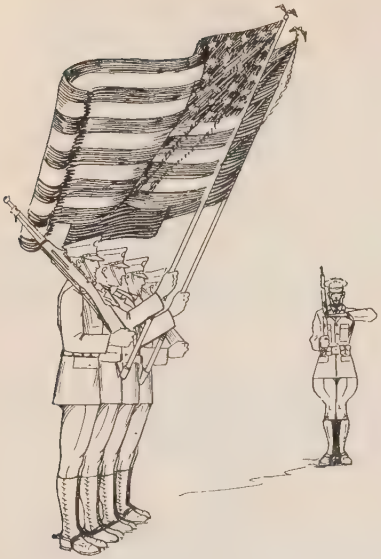


Plate 14. A Soldier Armed with a Rifle Saluting the Color.

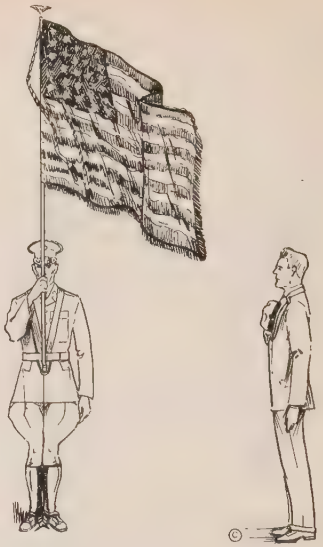


Plate 15. A Civilian Saluting the Color.

Plate 16.
A Civilian Saluting
in Fair Weather.

Plate 17.
A Civilian Saluting
in Rainy Weather.

paid a *cased* color or standard, *i. e.*, one within its waterproof cover. (Plate 11.) Ordinarily, flags other than colors or standards are not saluted.

Saluting Distance. The color is saluted when it is 6 paces away or 6 paces from point of nearest approach; the salute is held until the color or person has passed 6 paces beyond point of nearest approach.

In Uniform. An officer or soldier in uniform, out of ranks, outdoors, salutes the color in the same manner whether he be *covered* or *uncovered.* (Plate 12.) Indoors, he salutes if covered; if uncovered, he does not salute but stands at attention.

In Civilian Clothes. An officer or soldier, out of ranks, in civilian clothes and uncovered, salutes the color by standing at attention. If covered, he uncovers, holding the headdress opposite the left shoulder with the right hand. (Plate 15.)

In a Vehicle. If passing a color while in a vehicle (not in formation) the occupants salute without stopping. In this case (where the vehicle is in motion) the *driver* does not salute. If the vehicle is standing and a color passes, all passengers get out, stand at attention and salute. The *driver* remains on the seat and salutes, unless the vehicle is animal-drawn and two hands are needed to control his team.

On Horseback. A salute to the color may be rendered while mounted, either at the halt or walk. If riding faster (trot or gallop) the horse is brought to the walk.

In Ranks. *a.* Assume that a company or other unit is *marching.* A color approaches. The company is brought to attention (if not already at attention) and the commander salutes.

b. A company in line or close column or a larger unit in line or line of columns at a halt (not in the field) and armed with the rifle, is brought to present arms before its commander salutes the color. If the unit is halted in formation other than those noted above the commander salutes (the unit being at attention) but arms are not presented.

Civilians. The War Department, of course, cannot prescribe a course of conduct for civilians, but it is a discourtesy or sign of ignorance for them to ignore the colors. It is the custom for all well informed and patriotic civilians to render the courtesy as follows: A man to hold his hat opposite the left shoulder with the right hand (Plate 15), a lady to rise, when the colors pass.

The National Anthem.

The "Star Spangled Banner" is officially recognized by an act of Congress and the nation at large as the national anthem. When played by an army band, it must be played through without repetition of any part not required to make it complete. It must not be played as part of a "medley." While these rules do not bind civilian bands, they should be observed by them out of respect to the anthem. The same courtesies paid our national anthem are paid by us to the anthems of other countries when played on official occasions.

Out of Ranks. Whenever the national anthem is played at any place when persons belonging to the military service are present, all officers and enlisted men are required to stand at attention facing toward the music, except at retreat or escort of the color, when they face the flag or color. The reason for facing the flag at retreat, instead of the music, is that on this occasion the honor is paid to the flag.

At assemblies in theatres, assembly halls, stadiums, etc., where in order to face toward the music it would be necessary for individuals to turn around or towards a flank, officers and enlisted men remain facing their original front.

a. If in uniform, covered, they salute at the first note and hold the salute until the last note.

b. If in uniform, uncovered, they likewise salute, unless indoors, when they stand at attention but do not salute.

c. If in civilian clothes, uncovered, they stand at attention, but do not salute.

d. If in civilian clothes, covered, they uncover, holding the headdress in the right hand opposite the left shoulder until the completion of the anthem. In inclement weather the headdress may be held slightly raised. (Plates 16 and 17.)

Note that the rules under *a, c* and *d,* above apply whether *indoors or out of doors.*

Retreat. Retreat is a ceremony attending the lowering of the flag of a military post at or near sunset. There is a great deal of misunderstanding as to the proper procedure by those not in ranks during this ceremony. The courtesy described in the foregoing paragraph is not paid until the beginning of the *anthem.* No courtesy is paid during the sounding of the bugle call "retreat." There is no regulation which prohibits officers and soldiers from standing at attention during the sounding of "retreat," but it is not required and is not customary.

In Vehicles. In saluting the national anthem, officers and soldiers in vehicles (not in formation) must get out and salute while standing. Vehicles in motion will be brought to a halt. Occupants of vehicles (except drivers) will dismount. Drivers of vehicles will sit at "attention."

On Horseback. A person on horseback halts and salutes the anthem without dismounting, *i. e.,* he is not *required* to dismount. Individuals leading animals or "standing to horse" stand at attention but do not salute.

In Ranks. A unit armed with the rifle is brought to present arms, or one armed with the pistol to the hand salute, at or before the first note of the music, and is kept in that position during the playing of the national anthem, while its commander salutes. If not under arms it stands at attention while the commander salutes, but the men in ranks do not salute. When in the same unit some men are armed with the rifle and others with the pistol, the former are brought to present arms, while the latter, at the same command, execute the hand salute, holding the position ***ONE,*** until the command ***ORDER ARMS*** is given.

The procedure at retreat conforms to the foregoing general rule, except that the bugle call "retreat" precedes the playing of the anthem. Before the first note of the call the unit is brought to "parade rest" and is held in that position until the end of "retreat" or until the evening gun has been fired. The unit is then brought to attention and arms are presented as noted above.

The unit should, when practicable, be formed facing toward or nearly toward the music or, at retreat, toward the flag, but after being formed its position is not changed for this purpose.

Civilians. Civilians should pay a courtesy to the national anthem by rising and remaining silent. If covered, a man should hold his headdress in front of the left shoulder with the right hand. (Plate 16.) In rainy weather it is proper to raise the headdress slightly, as shown in Plate 17.

To the Color. "To the color" (or "to the standard") is sounded by a bugle while the flag is being lowered at retreat, when there is no band present to play the national anthem. The same courtesies are paid "to the color" (when sounded during ceremonies) as are paid the anthem.

Questions.

1. Assume that a soldier is addressing an officer. When is the word "Sir" placed at the beginning of a sentence and when at the end?
2. When does a soldier present the compliments of one officer to another?
3. Describe the actions of a soldier when called as a witness at a court-martial.
4. Describe a soldier's actions at the pay table.

5. Describe the courtesies rendered at a military funeral.
6. To whom does an officer report when he first arrives at a post for duty?
7. What calls are made by a newly arrived officer?
8. Who calls on a newly arrived officer?
9. Give the four names for the flag of the United States.
10. What is a color? A standard?
11. Describe how the national flag is displayed on the following occasions:
When carried with another flag.
When with another flag against a wall, staffs crossed.
When a number of flags are grouped together.
When hung horizontally or vertically against a wall.
When suspended between buildings.
When placed over a casket.
12. How is the flag folded?
13. Describe the garrison flag.
14. What courtesy, if any, is paid an officer in the following cases?
He addresses a soldier who is standing at ease in ranks.
He enters a mess hall.
He passes soldiers at work, but does not stop. He stops and addresses one of them.
He passes a group of soldiers playing baseball or watching the game.
He enters a tent where soldiers are present.
He enters the Y. M. C. A. recreation room.
He enters a class room where the instructor is junior to him.
15. What courtesy is paid an officer who passes in front of a squad of men commanded by a non-commissioned officer? When he passes in rear?
16. A squad of men commanded by a corporal is marching at route step. An officer passes. What courtesy is rendered?
17. Explain how a soldier in uniform, out of ranks, salutes the national color; the regimental color.
18. How does a soldier in civilian clothes salute the color when he is covered? When he is uncovered?
19. What courtesy is rendered by a soldier who passes the color while he is in an automobile? If the automobile is not in motion and the color passes it?
20. You are a non-commissioned officer in charge of a detachment marching at route step. What courtesy is rendered when your detachment passes the colors?
21. How should civilians pay a compliment to the colors?
22. You are a soldier out of ranks present at a place, outdoors, where the national anthem is played. What courtesy is rendered by you in the following cases:
In uniform, covered?
In uniform, uncovered?
In civilian clothes, covered?
In civilian clothes, uncovered?
23. You are a soldier, indoors, out of ranks, in the same situation as in the preceding question. What courtesy do you render in each of the cases noted?
24. Explain what is meant by "to the color."

Practical Exercises.

Exercise 1. Have different members of the class report to an officer in his office, bringing a message.

Exercise 2. A few members of the class are seated as members of a court-martial. Others are called and sworn as witnesses.

Exercise 3. Designate a student to act as paymaster. Form the class and have the members simulate drawing their pay.

Exercise 4. If practicable, exhibit the different kinds of flags. Display the national flag under the conditions described in the text.

Exercise 5. Have the section or class fall in. Give "at ease." Have an officer approach different men and ask questions.

Exercise 6. Have the section simulate eating in the mess hall. Have an officer enter.

Exercise 7. Have designated students simulate soldiers at work. An officer approaches but does not stop. He approaches again, stops, and converses with one of the soldiers.

Exercise 8. Demonstrate how a courtesy, if any, is paid an officer in the following cases:

He enters a tent where soldiers are present.

He enters a class room where the instructor is junior to him.

He passes in front of a squad (at ease) commanded by a non-commissioned officer. He next passes in rear of the squad.

Exercise 9. Have men pass the cased and uncased colors. Show what is done under the following conditions:

In uniform, covered.

In uniform, uncovered.

In civilian clothes, covered.

In civilian clothes, uncovered.

In uniform, covered, in an automobile.

Exercise 10. The class is out of ranks at a place where the national anthem is played. Have the proper courtesies paid under the following conditions:

In uniform, covered.

In uniform, uncovered.

In civilian clothes, covered.

In civilian clothes, uncovered.

CHAPTER III.

DISCIPLINE.[1]

The subject of military discipline, like that of military courtesy, is one but little understood outside of the army, and, it must be confessed, is not always viewed in its proper light even within the army. The trouble seems to be that most people either do not or will not grasp the proper meaning of what we call military discipline, its nature, its purpose, its necessity, and, finally and most important of all, its spirit.

Living within an atmosphere of strict discipline from the cradle to the grave, most people fail utterly in grasping its primary principles. As a matter of fact, the atmosphere of a rigid discipline surrounds us all every moment of our lives. We can never escape it for an instant. Practically every experience through which we acquire knowledge is in the nature of a disciplinary correction inflicted upon us by some agency of nature or of civilization. Everything with which we come in contact through life, even inanimate objects, stands ready to enforce on us certain immutable laws and to administer disciplinary correction on us when we violate those laws. As children, we were punished by the fire which burned us if we were careless with it. Our stomachs punish us if we misuse them. And so on down through our daily lives, laws and regulations await us at every step and disciplinary correction lurks at every unwary turn.

Outside of military circles, the average man recognizes fully the necessity for discipline in his family, in his business, in his relations with his fellowmen, because he is familiar with the conditions which surround the raising of a family, or which must govern the relations of men in civilized intercourse. On the other hand, he is not familiar with conditions in the military service; hence, he does not understand the reasons for its rules and regulations, and in consequence, is more than likely to view them with intolerance.

Even within military circles, among men who should be familiar with the reason and spirit of military regulations and military procedure, many make the serious mistake of confusing the exercise of authority with the maintaining of discipline. In brief, they appear to think that discipline must be maintained solely for the purpose of upholding their authority And again, both outside and inside of military circles, many fail to understand the spirit upon which true military discipline is based and must be based. Failing in this, they fail altogether, for the simple reason that men can understand the principle of military discipline only when they appreciate its underlying spirit.

Without the proper spirit there can be no such thing as discipline in any organization. We may have the outward semblance, the symptoms, so to speak, but that is all. We may have obedience, compliance with regulations, even cooperation of a kind, as long as the fear of disciplinary correction is present, but these symptoms last only while the one in authority is present. We have only the discipline enforced upon school children, who begin to throw things and misbehave the moment the teacher's back is turned.

The discipline upon which a successful army must be built is of a different kind, a kind that endures when every semblance of authority has vanished, when the leader has fallen, when the members of the team are dropping out one by one, and when the only driving power that remains is the strong and

[1] A lecture delivered to the cadets of the first class at the United States Military Academy, by Major General M. B. Stewart.

unconquerable spirit of the team. This conception gives us at once the working definition of military discipline, the spirit of the team.

A great many able writers have attempted at one time or another to define military discipline. In general, their definitions have not been satisfactory. The reason is that they have contented themselves with trying to describe the outward symptoms of discipline, the evidences of discipline together with methods for producing these symptoms, and have inquired no further. They have merely described the outward effects of discipline as they have observed them and the methods by which these effects were apparently obtained, but they have never taken the trouble to investigate the spirit, the mental attitude which lies behind these symptoms and makes them possible.

For example, one writer defined military discipline as being "The art of inspiring soldiers with more fear of their officers than they have for the enemy." The man who wrote that definition knew nothing of the spirit that carries men into the face of death in response to a command, or, in the absence of a command, in response to a sense of duty. His idea of discipline was symbolized in a club. He looked on the evidence of discipline, the unhesitating performance of duty, as resulting wholly from fear of punishment.

Fear of punishment undoubtedly did play its part in the days when the great mass of fighting men was composed of ignorant peasantry, and even of slaves, herded into battle by hereditary chieftains, but it is not so today. It may be remarked that it has never been so in this country and never will be.

Fear had no part in the spirit that held the barefooted, half-starved Continental soldiers in their freezing huts at Valley Forge. Fear was no part of the spirit that inspired the tattered veterans of Lee's army to follow him to the last bitter hour of surrender. Fear did not enter into the spirit that drove American soldiers through the tangled fastnesses of the Argonne. The American soldier has never known fear of punishment. He has always fought with the spirit of the free man, because he believed in his cause enough to fight for it.

Finally, if it is fear of their officers that makes soldiers fight, what is it that makes the officers fight? They are just ordinary men, like the rest of us. Of whom or of what are they afraid? It is true that they are afraid just as every man is afraid when he believes himself in personal danger. Many of the world's most gallant soldiers have testified to their own fear in the face of danger.

If the soldier is afraid of his officers and if they are themselves afraid, why do they not all run away? What is it that keeps them up to their work?

Strange, as it may seem, the answer is that they are all afraid of each other, afraid of losing each other's respect. Esprit in a trained and disciplined unit is based upon natural respect and admiration among its members. The knowledge that he enjoys the respect and admiration of his comrades is a source of the greatest pride to each member of the unit. The desire to retain this respect, to be looked upon as a worthy member of the unit, is greater than the man's fear of injury; again,—the spirit of the team.

The Necessity for Discipline. The question is frequently asked, Why do we need discipline in the army? The answer is that there can be no orderly effort of any kind, in the army or out of it, without teamwork, which is merely the ultimate expression of disciplined organization. We have ample evidence of this truth in every phase of life. There is no business which is not conducted under certain rules and regulations, regulations which govern all, employers and employees alike, in all of their comings and doings and goings.

The life of a factory, for example, is centered about a certain amount of machinery. Each part is tended by someone who feeds it, oils it, operates it. When the machinery is in operation, everyone must be in his proper place, looking out for his particular task, else the whole scheme of manufacture is upset. To insure against anything of this kind, we must have rules governing the conduct of the operators. Infraction of any of these rules leads inevitably

to trouble with the manufacturing scheme and brings in its train some kind of correction for the guilty one, disciplinary correction.

Again, let us take the discipline of the football team for an example. Every play is worked out in its smallest detail. Each player has a certain part to play. When the signal is given, each player does exactly what he has been told to do. If one of them fails, the play goes to pieces. If the failure is not excusable, the player goes off the field for not giving up to the spirit of teamwork.

So it is with the soldier. He knows that he is a part of a machine that will work smoothly if every man obeys orders, plays his part. He sees the machine work every day of his life. He obeys orders. He sees his comrades obeying orders. He has every confidence in them. He knows what they can do and he knows that they will always do the right thing; that they will keep on playing the game according to the rules. To him an order is like a signal to the football player. Neither stops to see what his teammates are going to do. Each knows that the other members of the team are going to play their parts, just as he is playing his part. Each knows just how the play is going to work out. Each knows that he is going to be backed up and, knowing this, he puts his best effort into what he is doing. With each repetition of the play, in practice or in the game, his confidence in his teammates grows until, in the end, he feels as sure of them as he does of himself. This final result is discipline, the spirit of teamwork, the spirit that keeps a man in line when his brain is reeling, which sends him smashing into the play with his last ounce of strength and which lifts him from the ground at the sound of the whistle to stagger back into his place.

Military Operations. Military operations are like any other business, any other game. They are conducted in accordance with certain rules and regulations. Teamwork in carrying out these rules and regulations is more necessary in military operations than in any other business or game. If anything goes wrong in a military operation, the mistake must be paid for in human life. In any other business or in any other game, the price may be a piece of broken machinery, a spoiled article, a lost game, all reparable, or if not entirely reparable, of no vital importance. But in the military business, the commodity, the most valuable on earth, is gone forever.

In the next place, the nature of military employment makes system and perfect order an absolute necessity. Large numbers of men must be assembled, cared for, and moved about in limited spaces. Each unit, each man, must play the game strictly according to rules, else confusion and disorder are bound to result. Regulations must provide for everything in detail, and they must be complied with to the letter if we are to expect teamwork under such conditions. Discipline which responds, unhesitatingly, to orders and regulations, whatever be the circumstances, is the only means of insuring such teamwork.

Finally, military operations, big or little, always carry with them a certain strain, mental and physical, for everyone concerned, from the commander-in-chief down to the last private in the rear rank. The more important the operation, the more critical the situation, the greater is the strain on all. The temptation to lag behind, to shirk, to jump the beaten path of duty grows with the strain, and unless the spirit of teamwork—discipline—is strong enough within each man to keep him in his place, doing his full duty, the handwriting on the wall will spell but one word—disaster.

An Historic Example. At the height of the late war, the Allies were faced with the military collapse of Russia; German propaganda had undermined the discipline of the great Russian army. The Soldiers' Congress in Russia passed a resolution: "The men will not in future salute officers." This was apparently a small incident in the big events which were then transpiring. Just what did it mean? Briefly, it meant that the team no longer recognized a captain, and that the spirit of teamwork was dead. It lead to the news which flashed over

the wires a few days later.: "The troops have left their trenches; the artillery is being sold; officers are serving as cooks and orderlies." Discipline had vanished and the army which had helped to save the Allies in 1914 and 1915 had disintegrated into a mob. You are familiar with the results. The disappearance of discipline from its army cost Russia millions of her men, women and children, most of her institutions, and billions of dollars.

On the other hand, let us consider one example of what discipline may accomplish in a critical situation. In the early days of the war, during the retreat from Mons, a battalion of the British Guards division was holding an important bridge which was a pivotal point in the line. Much depended upon the holding of this bridge. It was a critical moment in the British retirement. The Germans had hurled division after division on this one battalion until it was all but wiped out. A scant thirty men remained in a shallow trench. A few yards to their front was a deep ditch which led to the German flank. This handful of men was being attacked by masses of Germans eager to take the bridge. Suddenly a British Tommie, a mere boy, leaped to his feet and shouted: "Guards will advance—Rush!" and what remained of the Guards rushed to what looked like certain death. They left their trench and followed that boy. Fifteen yards away they dropped into the ditch leading to the German flank and opened a rapid fire into the rear of the attacking masses. The Germans wavered, then halted. Finally came the command to retreat, and the whole line began to fall back. A little later, reinforcements came up and the bridgehead was safe. The young Tommie was cited in orders and decorated. The commanding general asked, "Who gave the order to advance to that ditch?" He was told that it was the 18-year old bugler. The astonished officer exclaimed, "How did you dare give such an order?" The boy replied, "It was the guards, sir, and I knew they'd obey." He knew the team, and he knew he could depend on the spirit of that team.

It is such discipline which we must have to win battles—discipline which carries with it instant obedience, instant response to the will of the leader. There is no time for thought, no time to weigh conclusions. The order is given, it flashes to the brain of the soldier. Brain and muscle act instantly, without thought of the consequences.

How are we to cultivate this discipline, this spirit that responds unhesitatingly to command when shells are bursting overhead, when bullets are whistling about our ears, when your bunkie crumples up beside you and when you know that the next moment may bring your death? How? The answer is, by training.

What kind of training? Disciplinary training.

Disciplinary Training.

We have now learned something of the spirit of military discipline and some of the reasons why we must have it in its highest form in the military service. Let us see how we may go about building up this spirit of teamwork.

It is axiomatic in the army that we attain discipline through the medium of certain drills and exercises. These we call disciplinary drills for the reason that training in such drills and exercises has been found to develop teamwork, instant obedience to command, and harmonious, concerted effort. These drills and exercises are those which go to make up battle employment or which lead up to it. These drills are in all respects similar to the team practice of a football team.

Among these disciplinary drills and exercises the more important are physical drill, close order drill, and the ceremonies. In order to understand the way in which each contributes to discipline, we will consider them briefly and separately.

Physical Drill. Physical drill in general usually takes the form of certain exercises for the arms, legs, and body. These exercises, known as calisthenics, are executed collectively by a group of men at certain words of command. The

primary purpose of the work is, of course, to loosen up the muscles of the body, exercise them, and develop them. It is in the manner in which this work is done that it contributes to discipline.

Let us visualize a calisthenic drill for a moment. A group of men, any number from half a dozen to several hundred, is extended at proper intervals, standing at attention in front of the instructor. A preparatory command, for example, to raise the arms, straight to the front, to a horizontal position, palms down, is given. At the proper interval, the command of execution, sharp, incisive, follows, and each pair of arms snaps to the front, into the exact position at the same instant. Now that is what we see. What does it mean in the way of training?

In the first place, it means that each man in the group, while standing at attention, has had his eyes and mind riveted on the instructor, on his every word, on his every move; in other words, it means absolute concentration of every faculty on the work in hand.

In the next place, it means that every man in the group has such perfect command over the muscles controlling his arms that he is able to make them do just what he wants them to do at the instant he wants them to do it—in other words, absolute coordination of mind and muscle. In each case it means that the man's eyes have been trained to observe, his ears to hear, his brain to transmit, and his muscles to act, together and instantly. Briefly, it means that these faculties, eyes, ears, brain and muscles, have been trained, disciplined, to instant response to the voice of command. As time goes on, with each repetition of these exercises this coordination of eyes, ears, brain and muscles becomes more and more perfect. Response to the voice of command becomes more and more automatic until, in the end, it is subconscious, that is, it reaches the point where the man responds to the voice of command without actually realizing that he is doing so—perfect teamwork.

Close-Order Drill. In close-order drill the methods and the results are entirely similar.

Close-order drill consists of certain movements by which bodies of troops are maneuvered from one formation to another and from one place to another. Involving as they do the orderly movements of bodies of troops, it is essential that these movements be executed with absolute order and precision. To this end, the execution of these movements is described in great detail in the drill regulations. Each individual, each group, must execute its prescribed part exactly as prescribed, else confusion will result. This means that each individual, each group, must be trained to do his part with the utmost precision in order that the whole may move smartly, instantly, and smoothly at the word of command. In brief, each must be trained to move in a precise and orderly manner from one formation to another, how to stand, step off, march, halt, handle his rifle, and do it smoothly and in concert with the rest of the group.

Included under the general head of close-order drill are the school of the soldier, the school of the squad, the school of the platoon, and the school of the company.

Training in close order begins with the individual, the recruit, in the school of the soldier and progresses through that of the squad and platoon to that of the company. Beginning with the individual, in the school of the soldier, we teach him the movements of the feet and arms necessary to march, halt, and handle his rifle. We train him in all of these movements until he reaches the point where he does them smartly, automatically, in response to command. We then place him in a group, the squad, and train him to execute all these movements in concert with others. This small group is merged with other squads into the platoon, where other movements are learned and executed in the same manner. In the end, we have the large group executing movements smartly and with the smoothness of machinery. Individually, the members of the group

respond instantly and subconsciously to the word of command, and the collective result is perfectly concerted action—teamwork, discipline.

Ceremonies. The ceremonies are another class of military exercises designed to promote discipline among troops. They consist of certain formations and movements in which bodies of troops take part and in which they execute certain prescribed movements in concert at the word of command, very much as in the physical drill we have just considered. All ceremonies are accompanied by martial music at intervals, and the colors and standards are always present. For these ceremonies, the men are required to turn out in their best uniforms, with each article of uniform, arms and equipment, spick and span—ready for parade, as we say when speaking of anyone who is smartly attired and properly groomed.

How does all this—the formations, the movements, the music, the colors and standards, the spick-and-spanness—contribute to discipline?

To begin with, it involves concert of action—teamwork, discipline—whether it be in standing like graven images in ranks, handling a thousand rifles like one, or marching like well-regulated machinery, all to its highest degree. Every man is on his mettle. Each organization is out to make a showing for itself. Each is keyed up to the highest point of concentration and response to the voice of command. In a sense, it is like the last signal practice before a big football game.

In the next place, the whole setting—the smart uniforms, the music, the colors, the movements, is calculated to inspire the man taking part in a ceremony with pride in himself and in his profession, a pride which finds expression in perfect response to command, perfect teamwork.

Finally, we all know that we get a certain amount of pleasure out of doing anything in concert with others—whether it be joining in a chorus or taking part in a well-regulated cheer, or in any other get-together effort. The same thing obtains in a military ceremony. The company that goes through a ceremony without a break, that marches past the reviewing officer in perfect step, like a single man—that company goes back to its barracks or camp elated, proud of itself. On the other hand, the company that has been ragged in its movements, whose lines have broken in passing in review, or that has made a break of any kind—that company goes home silent and ashamed.

Mental Disciplinary Training. Finally, and most important of all, there is one other aid in cultivating discipline. It is in the training of the mind. We have considered how the members of a football team respond to the signal for a play, how each plays his part and how these separate parts contribute to the success of the play as a whole. In the play, each player does his part without thought of what the rest are doing. That is because he has seen the play worked out—on a diagram first and later in practice. He understands the play as a whole. He knows how each part links up with the rest. In other words, his mind has been trained to understand the whole play, and in the training of the mind lies the surest, most direct means of reaching the kind and degree of teamwork which we recognize as discipline. We may train a man to do a certain thing in a certain way. We may have him do it over and over again until he is letter perfect in its execution, but if he does not clearly understand why he does it in the prescribed way instead of some other way, if he does not know why he does it at all, what purpose it serves, how it links up with everything else—if he does not understand all these things thoroughly, his training amounts to little more than the physical training of his muscles. His brain, his mind, has not been benefited. It is just as though he had no mind at all. In brief any training which does not begin with the mind, does not make use of the mind of the one under instruction, is nothing more than animal training and, as far as the attainment of disciplinary benefit is concerned, is just about as valuable and lasting.

Therefore, in all our training, we should never forget that discipline is the main object we seek. We should never for a moment overlook the part that the mind plays in the inculcation of discipline. We should never fail to avail ourselves of its aid in short-cutting the road to proper training and discipline. We should always bear in mind that we may control a man's actions best, most surely, and most completely through the medium of a mind which understands and which responds because it understands.

We have tried to tell you as clearly as possible something of the spirit of discipline, the need for it and the means through which it may be attained. There remains one phase of discipline upon which we have touched only lightly, and which, if not properly understood and properly handled, is capable of ruining all of our other efforts toward disciplinary training. That phase is:

Punishment. We have seen that everything in life, animate or inanimate, has its own method of inflicting punishment upon us when we violate the established rules of conduct. It must be so in everything. It must be so in the military establishment. Some of the punishments to which we are subjected in life are harsh and painful. Some are not. In each case, the punishment is of a kind and degree that "fits the crime." In each case, it is impersonal. If we eat a green apple, we have a stomach ache. It is not always a severe or a humiliating punishment, but it is enough to call our attention to the folly of eating green apples. It is entirely impersonal. We know that the apple had no grudge against us in particular. It would have done the same thing to anyone else who ate it. We bear no personal feeling or resentment against that particular green apple or against green apples in general. All of which furnishes us with an excellent example of the spirit in which correction should be administered and received.

Correction should never be administered according to fixed rule. No two cases of violation of regulations are ever identical. No two men ever violate a regulation in exactly the same way, in exactly the same spirit, or with exactly the same evil results. Correction cannot, therefore, in justice be the same in any two cases.

It should, so to speak, fit not only the crime but the individual and the circumstances. What is punishment to one man is not punishment to another. What may correct one man may drive another to repeat his offense. A wise general rule to follow is this: Consider the violation of the regulation; consider the circumstances, the provocation, the temptation, the spirit; consider the man, his general conduct, general attitude, his personality, his make-up; then award punishment which will correct with the least possible humiliation.

Again, in inflicting punishment, emulate the green apple. Be impersonal. Make it clear that you are dealing judicially with a violation of a regulation, not personally with an affront to your own authority. Keep yourself and your authority in the background. Remember that you are clothed with authority only as an agent of the military government. Confine your efforts to guarding the authority of the military establishment, and your own authority will take care of itself.

As to the manner in which correction should be received, let us turn for the last time to the green apple. As we have said, we cherish no resentment against the particular apples that made us ill, or against green apples in general. Our chief reflection was that we had violated a rule of nature and had been punished for so doing. That is the identical spirit in which we should accept correction in the military service. When it becomes the duty of a senior to administer correction to any one of us, we are not justified in cherishing resentment against that particular senior or against seniors in general. What they do, they do in obedience to regulations. They have responsibilities which they cannot shirk without violating the regulations that stand over and above us all.

Means of Acquiring Discipline.[1]

The means of acquiring discipline vary according to the characteristics of the people. The methods which succeed in one country may fail entirely in another. With us the only means of discipline that is likely to succeed is that which has for its object the development of a willing and cheerful obedience on the part of the soldier. The officer who knows how to attain this end is an extremely valuable one. To establish thorough discipline in an organization is not an easy task and we may as well recognize some of the difficulties at the beginning. *In plain truth the young American is more difficult to discipline than the soldier of almost any other nationality.* This may not be a pleasant truth, but it is truth just the same.

"We are all sovereigns in America" makes fine reading but it does not make fine soldiers. No man can be a good soldier until he has thoroughly learned the lesson that the principal duty of a soldier is not to be a sovereign but to obey his orders. And 'there's the rub' with the young American. All his life-time he has been accustomed to doing as he pleases. We do not any of us lay aside the habits and the training of a life-time without considerable struggling and considerable misgivings. The young man who has been accustomed to being his own master and to making up his own mind as he goes along does not take kindly to the restrictions which discipline imposes. There are two principal methods of enforcing discipline—first, by force; and the second, based on common sense, pride and patriotism. Our people would never stand for the first method. It is foreign to our whole national character and should not be considered for a moment. At the same time no discipline can accomplish much if force is lacking when it becomes necessary. The true method of establishing discipline is by reliance upon the pride of the soldier; by appeals to his common sense; and by force of example.

"That which distinguishes the trained military force from the mob is discipline. In his admirable lecture on this subject, Colonel Applin of the British General Staff defines discipline as, instant and willing obedience to all orders, and in the absence of orders, to what you believe the order would have been.' "

Questions.

1. Explain the various ways in which an individual not in the military service encounters discipline.
2. What does General Stewart mean by "the Spirit of the Team?"
3. In your own words define military discipline.
4. Why is discipline necessary in the army?
5. How did the young bugler of the British Guards know his comrades would obey his order?
6. How may the spirit of team-work be built up in: A college? A factory? A military organization?
7. Can calisthenics be used to develop discipline?
8. What is the fundamental purpose of close-order drill?
9. What part do ceremonies play in the training of troops?
10. Why is mental discipline of value?
11. Upon what basis should punishment be given?
12. How best can the young American soldier be quickly brought to a high state of discipline?

[1] Extract from "Management of the American Soldier," by Maj. Gen. D. C. Shanks.

MILITARY HYGIENE AND FIRST AID

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MILITARY HYGIENE AND FIRST AID

INTRODUCTION.

In most wars losses of armies from disease, generally preventable, have greatly exceeded the losses in battle. The British in the Crimea lost twenty-five times as many men from sickness as from wounds. In our Mexican War, 1846-48, over 100,000 men were sent into Mexico. The losses were: Killed or died from wounds, 1549; died from disease, 10,986. During the Civil War the Union losses from disease were two for every one killed in battle. In the Spanish-American War we lost 968 men in battle and 5438 men from disease. Even during the World War, in spite of the great advances in medical science since 1898, our losses from disease still exceeded those from battle. They were: Deaths from disease, 57,460; killed or died from wounds, 50,280.

History is full of examples of important campaigns which have failed because of disease alone. In 1802 Napoleon sent an expedition of 58,000 men to Santo Domingo. It had scarcely landed when yellow fever appeared and spread rapidly. Many thousands died and the rest were so weakened from disease that a small British force badly defeated them. Only 8000 out of the 58,000 returned to France alive. Napoleon's Russian campaign of 1812 was a failure due to losses from lack of food and shelter and resulting disease. Of the 500,000 men who crossed the border in June hardly 20,000 returned in December, only 60,000 having been killed in battle. In 1828-29 a Russian army of 115,000 invaded Turkey; 6000 men were lost from plague in *one month.* At one time half of the total force was in the hospital. Only 15,000 men returned to Russia. Most of the 100,000 who were lost died from plague, fever, dysentery or cholera.

Such enormous losses from disease, mostly preventable, were almost entirely due to a single cause—ignorance and neglect on the part of officers and men. We are not longer ignorant, as the means of preventing disease are now well known; and there is no further excuse for neglect, since losses from disease are for the most part avoidable.

Battles are won by healthy, vigorous soldiers, and by them alone, Morale, stamina, and courage cannot exist apart from physical health and vigor. To conserve and maintain the health of his soldiers is the highest duty of the commander.

In the prevention of disease and the cure of disease and wounds the Medical Corps of the Army has a double function. One is humanitarian, to ease the sufferings and save the life of the soldier. But the other, and more important from the Nation's point of view, is *tactical,* to conserve and maintain the fighting strength of the Army. Of all the resources of a nation in peace or war, by far the most valuable and most costly, is man-power. A veteran soldier saved from disease is worth more than a green recruit. Lacking proper medical care, the best trained and most valiant of armies melts away like snow. Advances in medical science have resulted in hundreds of thousands of soldiers being saved, who, but for the unremitting care and attention of their leaders and their medical men, would have been in their graves.

These chapters dealing with disease prevention and first aid will be of almost as much use to you in civil life as in the Army. In some ways they will be more valuable, for in civil life you often have no one to see that you eat wholesome food, that your sleeping quarters are properly ventilated, and that you give your body the proper amount of exercise.

Hygiene and Sanitation Defined.

Hygiene and sanitation, in a military sense, include all measures, both individual and collective (for all), which are necessary to maintain the health, and hence the general efficiency of the soldier. They include, everything relating to "public health" as understood in civil communities, and many other precautionary and curative measures made necessary by the special conditions of military service.

Hygiene is the science of health and its preservation. **Sanitation** is the establishment of conditions favorable to health. **Personal Hygiene** refers to the measures of precaution which every soldier or other person should take to maintain his own health, which measures also help greatly to prevent the spread of disease.

Prevention and Cure.

There is nothing which better establishes the truth of the old maxim that "an ounce of prevention is worth a pound of cure," than the value of prophylactic or preventive measures in time of war. The saying is applicable to the conduct of the individual soldier, as regards his own health, and that of his comrades, so far as dependent on his actions, and to the officers commanding troops in the field, as well as the medical personnel attached thereto.

The cure of disease and the treatment of wounds is indeed the special function of the medical authorities. But the *prevention* of disease by personal hygiene, and the general maintenance of sanitary conditions, is at least equally the duty of line officers and troops. To keep the fighting man always ready for battle is the greatest contribution to victory that any officer can make. To keep himself thus fit is the highest patriotic duty of the individual soldier, as well as the wisest procedure from his own selfish point of view.

Responsibility for personal and communal hygiene thus rests upon every individual, of every rank or grade, throughout the army. The soldier neglects an important military duty when he fails to keep his person and clothing clean. Every private is responsible for the care of that portion of the squad room, tent or billet in which his own bunk is placed. Every squad leader is responsible for the personal hygiene of the men of his squad, and for their observance of sanitary regulations. The responsibility thus begins with the lowest private, and continues to the highest commander.

Co-operation of Medical and Line Officers.

Medical officers exercise no command of combatant troops. Their functions, so far as sanitary discipline is concerned, are almost purely advisory. They make recommendations to the commanding officer, the one responsible for the physical condition of the organization. However, a commanding officer may authorize a medical officer to give orders in his name for the correction of sanitary defects; in such a case the powers and responsibilities of the medical officer are greatly increased. It can be seen that medical officers are practically helpless if they do not receive the co-operation of commanders of line troops. Orders dealing with measures affecting the health of a command must be carried out by all ranks. Sanitary discipline is as important as any other form of discipline.

Attitude of Soldiers Toward Sanitary Measures.

The soldier having been selected as fit for military service, it is his duty to keep himself so. The average soldier is intelligent and amenable to reason. His co-operation can be won if officers have the patience and tact to explain the reasons for the things that are demanded and to insist on their performance without irritating the soldier. The mere issuance of orders and regulations is not sufficient unless they are followed up to see that compliance with them is prompt and habitual.

CHAPTER I

PERSONAL HYGIENE.

Personal hygiene consists essentially in the application of a few common-sense rules of conduct, the observance of good habits, and the avoidance of excesses of all kinds. A very few simple precautions will enable the soldier to evade most of the ills to which the flesh is heir. The rules of personal hygiene are the result of many years of experience. If you follow them you will profit greatly, live a longer, happier and more useful life.

In connection with the rules set forth below it should be borne in mind that practically all diseases are caused by *germs* which are especially successful in their attack on those who are in poor physical condition. These germs gain entrance to the body through the mouth, lungs or skin. Accordingly the best protection against disease is robust good health. Maintain your body in a vigorous condition by observing the advice which follows, and it will be very difficult for germs to gain lodgment in your system, even if you have been exposed to them.

The Rules of Personal Hygiene.

Keep Away from Sick Persons. Most diseases are transmitted from the sick to others. Therefore all should keep away from sick persons unless it is their duty to care for them. If one is sick himself he should keep away from those who are well.

If Sick go to the Doctor. If at any time a soldier does not feel perfectly well, especially if he is feverish, or if his bowels are not working properly, he should report to the medical officer for treatment. He should not hesitate out of false pride because his illness is slight—that is the best time for treatment. A very slight indisposition such as a cold, headache, sore throat, nausea, diarrhœa, fever, erruption on the skin, may be the symptom of a communicable disease, to which the soldier exposes his comrades. It is his duty to inform the doctor. He should not attempt to treat himself.

Disposal of Body Wastes. The normal physiological life of the body consists of constant waste and constant repair or replacement. The wastes of the body, unless promptly and thoroughly disposed of become poisons which weaken the body and undermine the health. Nature has provided a number of avenues by which waste products are expelled from the system. The chief of these are the lungs, the pores of the skin, the bowels and the kidneys, and all of these should be kept in efficient operation. For the lungs, deep breathing of pure fresh air, and occasional complete expulsion of residual gases, that is breathing *out* as well as in, is required. The skin can be relied on to function properly if it is clean. The bowels should operate at least once a day. There is no cause of ill health more frequent than constipation. Regular movement of the bowels is largely a matter of habit. It is promoted by going to stool at a fixed hour each day. The frequent use of laxatives is injurious and diminishes natural bowel movement. However, when moving to new surroundings it is frequently necessary to use a laxative while the body is becoming accustomed to the new environment. Bulky foods such as oatmeal, bran and fruits and fresh leafy vegetables (spinach, lettuce, etc.) have a laxative effect.

The kidneys are kept in good order by drinking plenty of water, so that the urine is habitually of a pale color.

All these processes are helped by the rest and exercise, and by moderation in eating which prevents their being overloaded. There is no danger in drinking lots of good water, but other liquids in excess are harmful.

Fresh Air. Deep breathing of fresh air is of the utmost value to good health and longevity. It is as important thoroughly to empty the lungs as to fill them, as otherwise a poisonous residue remains. The deep breather will usually enjoy considerable immunity from the most deadly and dangerous of all diseases, those introduced through the respiratory system. Do not remain in a room where the air is foul. Not only does foul air cause headache and other discomforts but it contains germs. Always have ventilation while sleeping. Do not go to sleep with the windows of your room closed tight.

Food and Drink. Every habit is bad if indulged to excess. A dangerous and common excess is in eating. Nearly all persons eat more than is necessary to maintain their health and strength, and thus overload their digestive systems, and the avenues by which waste products escape. Food should be taken regularly, in moderation, eaten slowly and masticated thoroughly. Soldiers should eat at their regular mess and avoid the habit of frequent visits to cheap restaurants. Be careful about eating uncooked food. Food often contains the germs of disease, all of which are killed by cooking.

If one goes to a restaurant he should have a "balanced" diet—some meat or eggs, vegetables (especially fresh vegetables), bread, fresh fruits, a little of sweets, etc. In the army mess a properly balanced ration is served.

It is well to go hungry occasionally—it gives the stomach and intestines a rest. *Don't eat too much* is perhaps the best rule of personal hygiene. It will be worth while for every man to prove to himself how much better he feels as a result of moderation in eating.

The following suggestions concerning the mess or dining hall will be useful: Keep flies off your food. They are great germ carriers. Keep sugar bowls, etc., covered. A soldier should use his own mess kit and cup and keep them clean by washing in boiling water; warm water is not sufficient as it may contain germs from other men's kits.

Never eat food which seems stale or spoiled. It causes food poisoning—often a serious and painful illness.

A soldier on duty in the mess, as cook, waiter, etc., should be scrupulously clean in his person and clothing. He should never permit any filth or flies on any food or utensils in his charge.

A moderate amount of coffee or water should be taken with meals, and plenty of water between times. There is little danger of drinking too much water but there is danger of drinking too much at one time, especially if you are overheated.

Water forms two-thirds of the weight of the body or about 10 gallons in an average individual. A loss of 1½ gallons, not replenished, causes death. On the march evaporation from the skin is rapid. On the average a man evaporates about 1 quart for each 7½ miles, and this should be partially replaced from his canteen, but produces no inefficiency. Accordingly canteens (the army canteen holds 1 quart) need not be refilled on an ordinary march of 15 miles, unless the weather is very warm.

A hot drink is usually beneficial. Intoxicating liquors are harmful. Drinking men are more apt to get sick than others and are less likely to get well. Their endurance is much lower and they suffer more from the hardships of a campaign.

Do not exchange pipes, cigars, musical instruments played by the mouth, and gas masks, with others. Do not put pencils or other such objects in your mouth. They are as likely to spread disease as food and drink.

Tobacco. Tobacco, while capable of much less harm than alcohol, may be injurious if used to excess. Immoderate use may cause indigestion, headache, palpitation or irregularity of the heart, insomnia, cough and hoarseness. The effects of tobacco are slow. A man can easily tell when he is smoking too much and should cut down the allowance. Fortunately the ill effects of tobacco usually disappear promptly if one stops smoking.

Relation of Weight to Health. There is a very close relation between *weight* and *health* and *longevity*. There is a proper weight for every height, and if one weighs very much less or especially *very much more* than normal he is much more subject to disease, and certainly will not live as long as if his weight is normal. Weight can be regulated by proper dieting and proper exercise. The following table gives the ideal proportions of height (ins.) and weight (lbs.) for young men:

Height	Weight	Height	Weight	Height	Weight
60	120	67	143	73	175
61	122	68	147	74	182
62	125	69	151	75	189
63	128	70	156	76	197
64	131	71	161	77	205
65	135	72	168	78	213
66	139				

As a man grows older his weight should be somewhat *less* for the same height than when he is young. Usually the reverse is true—people grow fat as they grow old, and this *shortens their lives.*

Sleep. Sleep is part of nature's process in the maintenance of health, and loss of it rapidly lowers the vitality. The average person requires 7 to 8 hours sleep in 24 hours, and it should be taken at regular times. But if one needs it, sleep at any time is beneficial.

To obtain the utmost benefit sleep should be had under favorable conditions: Fresh air, which means good ventilation and no crowding of sleeping quarters; a comfortable bed and sufficient covering; quiet. If necessary to sleep on the ground a good couch may be made of hay, straw or boughs covered with a blanket. If these be not available select a soft spot and cover the earth first with a raincoat and then a blanket. Night clothes should be donned; never sleep in regular clothing if avoidable. Avoid drafts— it is possible to have good ventilation without drafts.

Sleeping quarters and bedding should be thoroughly aired during the day. Mattresses and blankets should be hung out in the sun for at least two hours once each week and oftener if possible. Sunlight is the best agent for killing disease germs.

Clothing. Clothing should be appropriate to the climate and season. Clothes should fit easily. In particular, tight collars, belts and leggins should be avoided. They restrict the circulation.

Clothes like everything else should be *clean.* Soldiers wash their own clothes when necessary, and air their underclothes at night. Soiled clothes invite vermin and promote skin troubles. They often contain germs which may be driven into the flesh in case of a wound. For these reasons, when possible, underclothing and socks should be boiled when washed. Methods of getting rid of lice in clothing will be discussed later in the text.

Wet and Cold. Wet and cold are not harmful in themselves. But if the body is chilled below its proper temperature the vitality is lowered, and the power of resistance to disease. Disease germs are usually present. If the vitality is high the system fights them off, but when the vitality is down the germs obtain a lodgment. The feet are most subject to wet and chill, and this often brings on colds, which in turn may be the forerunners of more serious maladies, such as influenza, bronchitis, pneumonia. Wet clothing or shoes should be promptly changed. The soldier should wear sufficient clothing to keep himself warm.

Vermin. Vermin include lice, fleas, bed bugs and other insects. The best security against vermin is cleanliness of person, clothing and bedding. Nothing more than a bath is necessary to rid the body of fleas. The sunning and airing of blankets and mattresses, already noted, will usually prevent bed bugs and other insects on bedding.

Lice are the insects usually found on the body. They are of three varieties, namely, the body louse or "cootie," the head louse, and the public louse or "crab."

The *cootie* lives in clothing. It is about the size of a pin head and is of a dirty white color. This insect causes much trouble among troops. During the Civil War it was known as the "grayback." During the World War this louse was called the "cootie." Means of getting rid of the cootie are as follows:

a. By applying heat.

1. Boil clothing for 30 minutes.
2. Steam clothing, the length of time depending on the temperature.
3. Press dampened clothing with a hot flat iron, especially the seams, as cooties gather and lay their eggs (nits) there.
4. Hang clothing in superheated rooms (dry heat), the time depending on the temperature.

Of these methods steam is the most practicable where a large number of men must be taken care of. Boiling is effective, but only underclothes can be satisfactorily treated in this manner. Pressing may be used where other means are not at hand. The use of dry heat is uncertain.

The "Serbian Barrel" affords a simple means of destroying lice in clothing. It consists of a pan and a barrel placed over a fire. The pan contains steaming water and the barrel is perforated at the bottom, allowing the steam to enter. The barrel has a tight-fitting cover. Infested clothes are placed on racks in the barrel.

b. Chemical agents:

1. Immerse clothing in gasoline. Bathe the body with gasoline, being careful to keep it out of eyes, ears, mouth, rectum and genitals.
2. Dust vermicide powder into clothing.

The *head louse* is of a gray or brown color and is about one-twelfth inch long. To get rid of head lice clip the hair or use kerosene or gasoline.

The *crab* is found in the hair about the genital organs or in the hair of other parts of the body covered with clothing. It is about half the size of the head louse and is a dirty gray or brown color. To get rid of crabs and their eggs shave the hair from the affected parts, wash them well with vinegar or acetic acid. Mercurial ointment may then be applied, but only under the direction of a physician.

Vaccination and Inoculation. All soldiers are required to be vaccinated against small-pox and inoculated against typhoid and paratyphoid fevers. These treatments are almost certain preventives and every person, whether in military or civil life, should take them for his own sake and for the protection of others.

Vaccination for small-pox should be taken every three years, and in emergency in case of an epidemic. The typhoid inoculation includes three successive treatments. Two complete inoculations at an interval of five years confer immunity, but an emergency treatment should be taken in case of epidemic.

Exercise and Recreation. Unlike any other piece of machinery, the body grows and develops with use. It may be entirely ruined by improper use, but a weak puny body may be made strong and healthy by well directed use or exercise. Theodore Roosevelt was a weak, unhealthy child, but he developed himself by well-regulated exercises and careful modes of living into one of the most powerful Americans of his day, both physically and mentally.

There is no organ of the body which is not improved by exercise, but the exercise must be rational or it will do more harm than good. When you begin to feel tired you have exercised enough. Rest increases the capacity for later work. Frequent rests should be provided in athletic contests. Sudden and severe strains or frequent and prolonged strains on the heart in young men may lead to serious injury. "Athletic heart" is an example of this.

Most soldiers obtain a good deal of exercise in the performance of their regular duties. But even so this should be supplemented by some sensible game, such as baseball, football, volley-ball, basket-ball, etc. Swimming, boxing and walking are good forms of exercise. Outdoor or fresh-air games are of course to be preferred. To be a "good sport" means to play fair in a game, and a man who will play fair will usually be fair in other ways. It is for these reasons that outdoor games are now a regular part of the physical and general training of the soldier. Amateur sport is one of the finest things in the world, and an excellent preparation for the more serious game of war. All the virile nations have always been fond of outdoor sports, and athletic competitions were first held in the armies of the ancient empires.

Recreation means some form of pleasurable relaxation as distinguished from work or duty. "All work and no play makes Jack a dull boy," says the proverb. A man who takes no recreation often comes to brooding or thinking too much on himself and his troubles. When possible, as it nearly always is, recreation should be combined with exercise. Recreation should include social as well as athletic gatherings, lectures, moving pictures, reading rooms, etc.

Worry. Worry or brooding over real or imaginary troubles lowers morale and efficiency and if persisted in brings on mental disorders. If a man has real troubles he should think them over intelligently and decide how to overcome them. Worrying over them never does any good, but always much harm. The best way to drive off worries is by recreation in congenial company.

Personal Cleanliness. Personal cleanliness is the most desirable of good habits and the mark of the superior man. The soldier who is attentive to the cleanliness of his person takes the best insurance against sickness. Personal cleanliness includes the skin, the mouth and teeth, the nose and ears, the scalp, the genitals and rectum, the armpits, the hands and feet. A clean body must be clothed in clean garments, and a change of underwear should follow every bath. A man should not sleep in his underclothes when it is possible to don night clothes. Cleanliness is more a matter of habit than of opportunity. The man who really wishes to be clean will generally contrive to be so under the most discouraging conditions.

Baths are beneficial not only for cleanliness but for the physical reaction they induce. Neglect of bathing causes the oily secretions of the skin to accumulate and collect dirt, clogging the pores and forming favorable conditions for the development of skin diseases and lice infestation. Two baths a week are enough to keep reasonably clean the bodies of persons who do not exercise vigorously. A daily bath is preferable for those whose work causes them to perspire freely. Never take a bath immediately after eating, especially a cold one; wait an hour or two. Never take a cold bath when overheated. Under any conditions a bath in tepid water is preferable to a cold bath. Shower baths are more sanitary than tub baths.

Wash the hands frequently, especially before meals and after a visit to the latrine.

Brush the teeth and rinse the mouth at least twice a day, especially on retiring for the night. A clean tooth never decays. Decayed teeth are the cause of much suffering and premature death. The soldier should have his teeth inspected once every 4 to 6 months.

Keep the hair short and wash and massage the scalp frequently. It is much safer to shave yourself than to patronize the average barber shop. Using another man's towel or shaving outfit is very dangerous.

Cleanliness of Surroundings. Next to personal cleanliness, cleanliness in quarters, mess, baths, latrines, and all other places frequented by soldiers is of the greatest importance. Sanitary measures may be almost summed up in a

word—*cleanliness.* Decency, self-respect and efficiency cannot exist in the midst of unclean surroundings.

Care of the Feet. Marching is usually a soldier's principal occupation. If his feet are in such condition that he cannot march he is useless as a soldier. "Mobility can take the place of numbers" and "Strength of legs wins more battles than force of arms," said Napoleon. The sensational victories of Stonewall Jackson in the Shenandoah Valley were due almost entirely to the astonishing mobility of his army—Jackson's "foot-cavalry" as they were called.

The cavalry soldier depends more upon his horses's feet than his own. Nevertheless, on long marches he is frequently required to walk and lead his horse; in combat, cavalry frequently fights on foot. Care of the feet is of little less importance to the cavalryman than to the foot soldier.

The care of his own feet falls principally upon the soldier himself. They should be kept warm, dry, clean, and free from blisters, abrasions, corns, callouses, bunions and ingrown nails.

The first requisite is good shoes of proper pattern and size—neither too large nor too small, but especially not too small. Sharp-toed or low cut shoes, are unsuitable for long marches and almost sure to ruin the feet. Only the standard army high-top marching shoe should be worn.

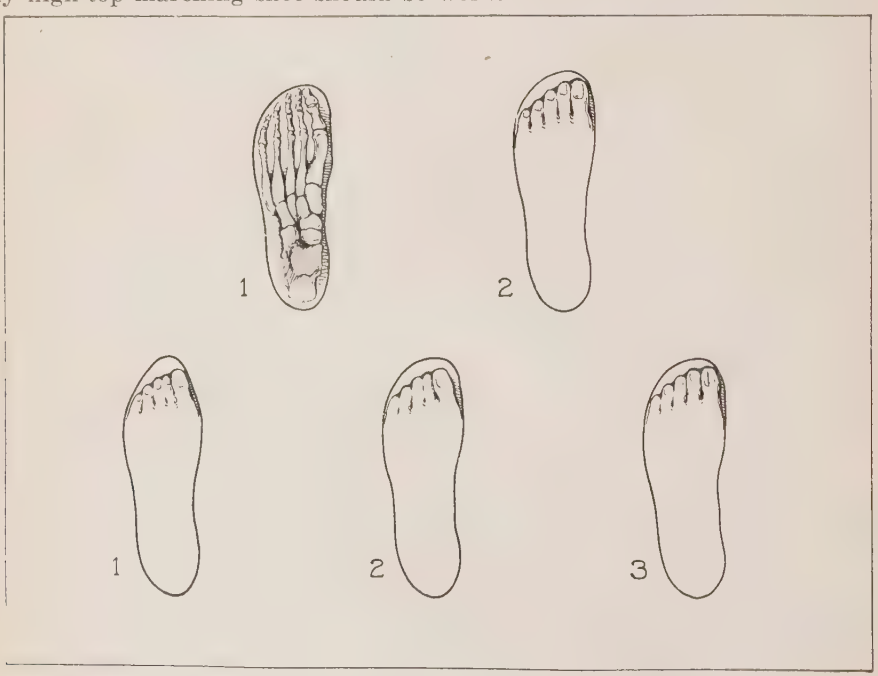


Plate 1. The Effect of Shoes on the Feet.

Above. 1. The effect of too short a shoe.
2. A good foot in a properly fitting shoe.

Below. 1. The effect of a pointed and too narrow shoe.
2. The same foot placed in a properly fitted standard army shoe.
3. The foot restored to a natural and healthy state as a result of proper fitting of shoes.

Shoes should be carefully fitted under the supervision of a competent officer or non-commissioned officer, in accordance with the system prescribed for the army. After a recruit has been properly fitted his size should be recorded and he should remember it himself.

The best socks for field service are light weight woolen. In cold weather, or if the feet tend to chafe, two pairs may be worn. Socks, like shoes, should be large

enough to permit free relative motion of the toes, but not so large as to cause wrinkles. Socks with holes in them should never be worn on the march.

A march should never be started in new shoes. They should first be "broken in" by several days wear in camp. Shoes may be broken in rapidly by standing in about 2½ inches of water for 5 minutes, and then walking about, allowing the shoes to dry on the feet. Shoes are waterproofed by applications of neatsfoot oil.

The feet should be washed and rubbed briskly with a towel at the end of a march. The feet are hardened by washing in a solution of salt and alum. If they tend to chafe this may be prevented by the use of foot powder of which there is a supply in every company. If the feet become wet they should be washed in cold water, massaged and provided with fresh socks. Nails should be trimmed by cutting straight across, that is, do not round off the corners; if you do, you will have ingrown toe nails. The nails should be trimmed frequently but should not be trimmed too close, as they are needed to protect the ends of the toes.

If blisters appear they should be opened with a needle (sterilized in the flame of a match) by inserting the needle through the undamaged skin just outside the margin of the blister, so as not to puncture the blister itself. Allow the water to escape and then cover with zinc oxide plaster. If a small bit of gauze (not more than one thickness, so as not to form a lump under the sock) is placed directly over the blister and under the plaster, the loose skin will not be torn off when the plaster is removed. A very harmful thing to do is to remove the loose skin, for in that case the place will be very tender and when rubbed will cause considerable pain. A man can march with a blister which has been properly taken care of.

If the feet start to chafe, considerable relief can be obtained by removing the shoes during a halt and allowing the feet to cool before replacing the shoes.

Special Rules for Camps and Marches. Be careful of the water you drink.

Be careful not to soil the ground with fecal matter or urine.

Be sure that you wash your mess equipment thoroughly in *hot* soapy water and rinse it in *boiling* water.

Use a mosquito bar in regions where there are mosquitoes.

Pay attention to bathing.

Do not sit or lie on damp ground.

Wash your clothing frequently and your socks and feet every day.

Ditch your tent as soon as you can after it is put up.

Dry out damp clothing (especially shoes and socks) and blankets at every opportunity.

Questions.

1. Why is the prevention of disease a vital necessity from the military point of view?
2. Define hygiene; sanitation; personal hygiene.
3. Why is team-work between medical and line officers necessary in preventing disease?
4. How are wastes from the body excreted?
5. How may constipation be avoided?
6. How are the avenues by which waste products escape kept in good working order?
7. Why is deep breathing beneficial?
8. Name the precautions to be exercised by the soldier with reference to food and drink.
9. What harmful effects result from over-eating?
10. What is the relation between weight and health?
11. Explain how vermin on the person or clothing may be exterminated.

12. What is meant by vaccination and inoculation and why have these been made compulsory in the army?
13. Of what benefit to the body is exercise? What other benefits result from outdoor games?
14. What measures should be carried out to insure cleanliness of person?
15. What bad effects result from failure to bathe frequently?
16. How should every soldier care for his feet?
17. Describe the treatment of a blister on the foot.
18. What do you consider the most important rule of hygiene and sanitation?
19. Name some of the important rules of hygiene to be observed by the individual in camp and on the march.

Practical Exercises.

Exercise 1. Demonstrate the treatment of blisters on the feet.
Exercise 2. Demonstrate the fitting of shoes and socks.

CHAPTER II.

INSPECTION AND CARE OF FOOD.

Importance. Good food, properly prepared and served, is vitally necessary to good health and good discipline. There is nothing that contributes more to the contentment and morale of the soldier than a good mess. Supervision of the mess is an important duty. Officers should make frequent inspections of kitchens and messes, to insure scrupulous cleanliness and neatness of personnel and equipment, and to make certain that food is properly cooked and served, without waste, and that no tainted food is used.

With a little practice the average officer or mess sergeant can learn to inspect food supplies and see whether or not they are fit for consumption. When received in good condition care must be exercised to maintain supplies in that condition. Otherwise men will be stricken with potomaine poisoning, or diseases such as dysentery or typhoid fever will spread.

Fresh Beef. Fresh beef should have a red or pinkish color. It should feel firm to the touch. If soft or flabby it has probably begun to decompose. The odor is another good indication. Stick a knife through the quarter of beef to the bone. Withdraw the knife quickly and smell the tip of the blade. If the interior of the quarter is rotten you will get the smell on the knife blade. If the meat clings to the knife as you withdraw it that is another indication that decomposition has probably set in.

Beef should be kept in an ice box. If in the field where ice is not available, it must be cooked within a reasonable time or it will spoil.

Milk. Care must be taken to see that milk comes from a clean source. Otherwise much sickness will result. In nearly all cases it is advisable to boil milk unless it has been pasteurized at the diary. Cleanliness in the handling of milk after it reaches the kitchen is absolutely necessary.

Canned Goods. The canning industry is based on the principle that heat kills bacteria and that after this is done decomposition cannot set in while the cans are sealed. Canned goods are safe if the sterilization process has been properly carried out. Putrefaction causes the generation of gases; this can be detected by the swelling of cans and by the odor of the damaged food. Cans should be emptied as soon as opened.

Bread. Bread which has become moldy is unfit for use, as it will cause diarrhœa. Good bread should be kept in a suitable container to keep it from drying out too rapidly. The container should not be *air tight* or the bread will mold.

Other Articles of Food. A casual inspection will reveal the quality of most of the other articles of food received in the company kitchen. Vegetables that have rotted, cereals that contain worms, etc., require only casual observation to discover their condition. All food should be placed on shelves and protected from insects and dirt.

Transporting Food.

Army Regulations require:

a. That vehicles for transporting bread, fresh meat, and like exposed food supplies be kept scrupulously clean.

b. That bread be kept covered while being transported. Covered bread boxes, laundry or bread baskets or bags (such as clean bed sacks) are the best means of protecting loaves in transit.

c. That meat be kept covered while being hauled. A suitable device is a bag of stout canvas, large enough to hold a quarter of beef and provided with a draw string for closing.

Cleanliness of Kitchens and Food Handlers.

The necessity for scrupulous cleanliness in the surroundings and in all that pertains to food and its preparation should require little emphasis. Food is contaminated by washing in polluted water, by dust, by flies, or other insects, and by dirty utensils or furniture. Food should be kept in clean receptacles and protected from flies. All wastes should be promptly disposed of, and all utensils and furniture kept clean by scrubbing and scalding.

Food Handlers. Regulations require that all men be examined by a surgeon before being detailed as food handlers. Cooks and men who work in the kitchen or mess hall must be clean in person (*especially their hands*), neatly attired, preferably in white, and closely shaven.

Dish Washing. The importance of washing dishes properly has been emphasized since the World War as never before. The influenza epidemic of 1918 was a terrible lesson. During an investigation conducted at Newport News, Va., during 1918, it was found that in some instances the dish water was more highly contaminated than sewage. Tests at other places showed conditions almost as bad. Regulations require the following procedure where dishes can be assembled for washing:

Wash the dishes with soap and warm water.

Rinse in hot water.

Boil or steam for 10 minutes, if there is an epidemic of intestinal or respiratory disease.

Allow them to dry in the air while still hot.

In the field, where mess kits cannot be assembled for washing, the requirements are:

Three receptacles will be provided, the first two to contain hot soapy water.

The third receptacle will contain clear hot water.

The mess equipment will be air-dried. Dish towels will not be used. The soldier first scrapes his mess kit and places the scraps in the garbage can. He washes it in the first soapy water container, rinses it in the second, and gives it a final rinsing in the third receptacle containing the clear hot water.

Water Supply.

Impure water is the principal cause of such diseases as typhoid fever, dysentery and diarrhœa. Water easily becomes polluted as it dissolves many substances readily and holds solid matter in suspension. Shallow wells built near privys or where human excrement can easily reach them, soon become alive with bacteria from the human intestine. Streams are usually polluted from the discharge of sewage into them, and the surface waters drained into them may also contain dangerous impurities.

Contrary to the popular impression it is not always possible to determine under field conditions whether any particular water supply is potable (drinkable) or not. The sparkling water from the clearest spring may be full of disease germs for the reason that the course of the spring may lead under a privy. (Plate 2.) On the other hand, a muddy or discolored stream may contain no harmful bacteria. Water from large lakes or rivers with uninhabited shores and from artesian wells or city reservoirs is usually good. That from ponds, shallow springs, shallow wells, cisterns, slow running streams, and irrigation ditches, is generally impure. It is better to take no chances but to purify the water if it has not been pronounced safe by a medical officer.

Methods of Purification.

The field methods for purifying water (in small quantities) include portable filters or improvised sand filters, ozone and ultra-violet rays, boiling and chlorination. Of these the latter is easily the best, as it is very effective, requires little time and no heavy, cumbersome apparatus.

Chlorination. The apparatus for chlorination now usually employed consists of a canvas water bag with taps (faucets) at the bottom, and calcium hypochlorite put up in small glass tubes. The bag weighs only 7½ pounds and contains 40 gallons, enough water to fill 150 canteens. (Plate 3.) It is hung from a pole or tripod, and the contents of a hypochlorite tube poured in. In the absence of a bag the contents of a hypochlorite tube may be placed in the canteen of a reliable non-commissioned officer, who can then sterilize the contents of other canteens by pouring into them a canteen cap full of the treated water. The only really essential item is the hypochlorite tube, and an organization should never be without a supply of these tubes. When using the hypochlorite

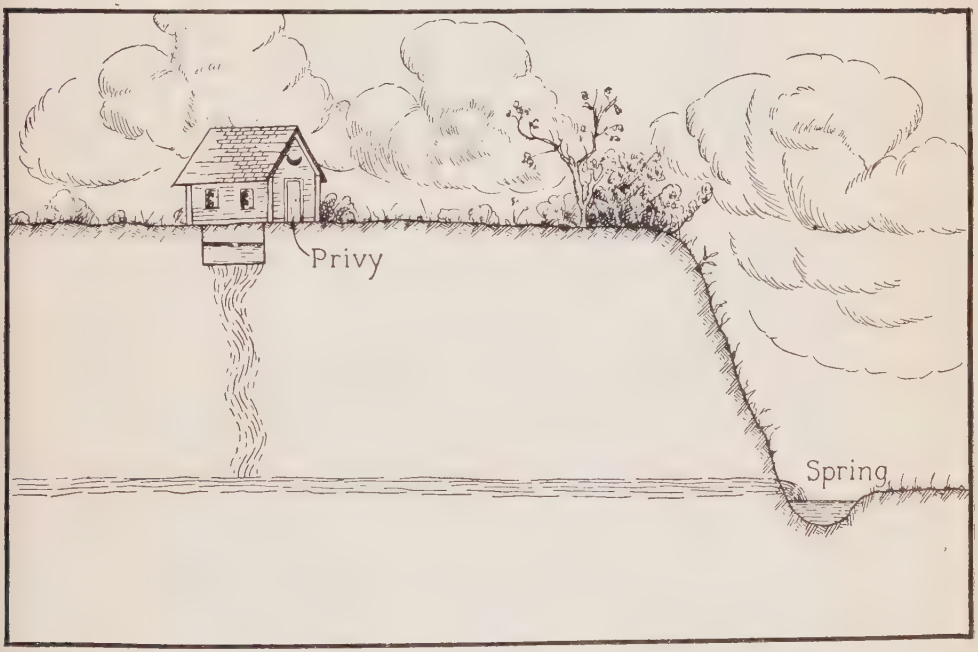


Plate 2. The Clear Sparkling Water of a Spring May Be Polluted by Waste From a Privy.

powder it is important that it be thoroughly dissolved in a cup or other receptacle and then added to the water in the bag with stirring. The water should be allowed to stand for 30 minutes before using in order to allow time for the complete action of the chemical. When empty the bag should be rinsed out before being refilled and treated by the addition of another tube, as the residue from the first tube in addition to the powder in the second tube will make the water taste of the chemical.

Boiling. When other means fail, boiling for 5 minutes is always a sure method of sterilization. It has the disadvantages that it requires a fire, considerable time is required to bring the water to a boil, and thereafter to cool it.

Amount Required. The *minimum* daily allowance of water for drinking and cooking only is from 3 quarts to 1 gallon per capita. For washing purposes at least an additional gallon will be required.

Guarding the Source of Supply. The source of water supply, whatever it may be, should be guarded against pollution. The principal source of pollution is human and animal excrement (sewage). All waste matter, and especially excreta, should be kept away from the water supply, or from any place where it might be washed into the water.

If the source of supply is a natural body of water such as a lake or spring the camp should be arranged so that latrines and animals will be as far from it as possible. Even the kitchens and tents of the men should not be very close. If the source of supply is a stream, use the upper part as a source of drinking and cooking water, next below for watering animals, still lower for bathing, and downstream for laundering.

If necessary a guard should be placed over the water supply to see that it is not polluted, and that men drawing water observe the instructions given.

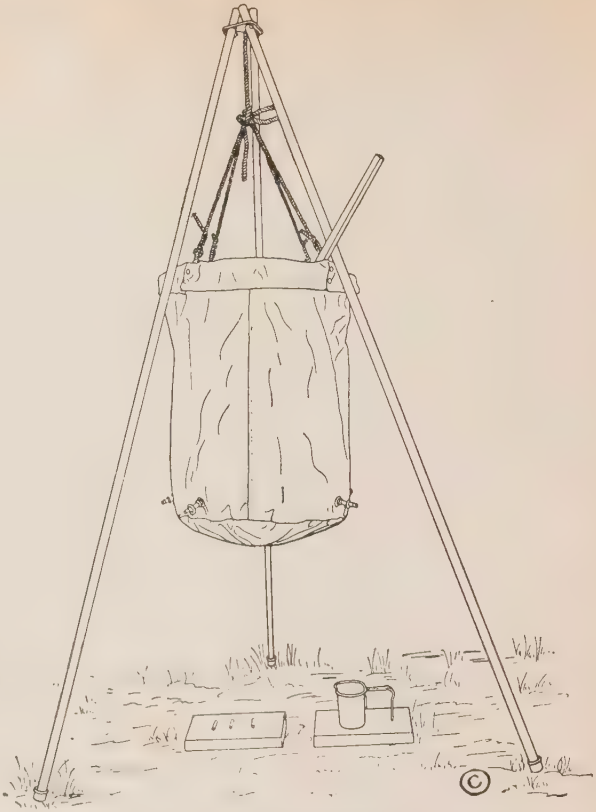


Plate 3. Bag for Water Sterilization, With Tripod.

Questions.

1. How can one know whether or not fresh beef is fit for consumption?
2. In what ways may the putrefaction of canned goods be detected?
3. Name the precautions to be exercised in transporting fresh beef and bread from issuing warehouse to the company kitchen.
4. Why is the sanitary washing of dishes important? What requirements must be carried out when dishes are collected for washing? When each man washes his own mess kit?
5. What danger is there in the use of impure water? Tell some of the ways in which water becomes polluted.
6. Describe two simple methods of purifying water in the field. Which is the method most commonly employed in our army?
7. Mention some of the precautions to be observed to prevent the pollution of water.
8. What is meant by the term "potable water"?

Practical Exercises.

Exercise 1. Inspection of the arrangement, equipment and methods of a model mess.

Exercise 2. Demonstrate the method of purifying water with calcium hypochlorite.

CHAPTER III.

HOUSING AND GROUNDS.

Air Space and Ventilation. Overcrowding of troops in barracks, billets and transports, though often unavoidable in time of war, contributes powerfully to many epidemic diseases, and always causes lowering of vitality. Whenever possible at least 60 square feet of floor space per man should be provided, and preferably 80. For very short occupation 50 square feet is permitted if necessary. Troop ships, by reason of their restricted air space, are especially conducive to the spread of respiratory and other diseases. They should be ventilated to the utmost, and the troops kept on the open decks as much as possible.

Generally speaking, officers should secure for their men all the air space practicable.

Subterranean shelters are very difficult to ventilate. This may be accomplished by building a small fire in the entrance.

In addition to providing ample floor space, all quarters should be thoroughly ventilated, especially during the hours of sleep, when ventilation is most difficult to enforce. Officers should inspect the quarters of their men during the night to make certain that they are properly ventilated as soldiers have a most persistent tendency to close all air inlets. Beds should be at least 3 and preferably 5 or 6 feet apart. If less than 5 feet apart men are required to sleep head to foot. It is desirable that the sleeping space be divided into rooms or compartments, each accommodating 8 to 24 men. An open fireplace is an excellent means of ventilation as well as a cheerful accessory, but unfortunately it is seldom available. Sleeping quarters should be thoroughly aired daily during the absence of the inmates, and bedding should be systematically exposed to sun and air.

The tendency among soldiers is to maintain too high a temperature in barracks. A temperature of 65 to 68° during the day is sufficient; it should never be higher than 70°.

Care of Floors. Floors should be treated with floor oil, wax or other suitable preparations, at proper intervals, to keep down dust. They should be swept daily and scrubbed frequently. Cuspidors should be provided. Spitting on floors is never to be tolerated.

Plumbing. Shower heads should be provided in the proportion of one to each 15 or 20 men. In barracks or permanent camps water closets are needed in about the same proportion, while lavatories or wash basins should be in the proportion of one to 10 or 15 men.

Tents. Regulations prescribe that the number of men assigned to a pyramidal tent shall not exceed 6 during warm weather. In winter, or if an undue amount of sickness develops in summer, the number is reduced to 5. For temporary occupancy there may be 8 men to a tent. Tents must be well ventilated, especially at night; side walls are required to be rolled up daily, weather permitting. Tents should be furled (wrapped around the center pole) frequently in order that the sites may be thoroughly sunned.

Flies and Mosquitoes. Flies transmit diseases such as typhoid fever, dysentery, and tuberculosis. They may be exterminated or men protected from them by the following methods:

Screen buildings, especially kitchens and mess halls.

Have men sleep under mosquito bars.

Eliminate the food supply of the insects by destroying waste material on which they feed and by keeping garbage cans covered.

Eliminate their breeding places. They usually breed in human and animal wastes.

Destroy the adults by using fly traps, fly paper, fly swatters and poisons. A formalin poison is very effective. It consists of a 3 per cent solution of formalin, sweetened or otherwise baited.

Mosquitoes spread malaria, yellow fever and dengue. They may be exterminated by destroying their breeding places. This is done by filling in, draining or treating with oil all pools and depressions where water stands. Mosquitoes require about 9 days to develop from the egg to the adult mosquito; hence water should not be allowed to stand that long, unless covered with oil. This applies especially to puddles left by rain which do not evaporate inside of 9 days. Tanks and cisterns should be screened or otherwise made mosquito proof. Persons may be protected from mosquitoes by screening buildings and by the use of mosquito bars.

A thorough police of the grounds surrounding buildings helps to exterminate both flies and mosquitoes as well as being beneficial as a general sanitary measure. Keeping *grass short* is an excellent means of keeping down mosquitoes and flies, especially in warm climates.

Bedbugs. Bedbugs may be exterminated by sulphur fumigation. Two pounds of sulphur should be burned for each 100 cubic feet of space, the room being tightly closed for 12 hours. All openings must be sealed. Bedsteads and other furniture are disinfected by a liberal application of kerosene, after which they should be placed in the sun for several hours. Mattresses and blankets are deloused as described elsewhere.

Barber Shops. Army Regulations concerning barber shops are as follows:

They will not be located in rooms where men sleep.

They will be kept scrupulously clean.

Cuspidors will be provided and disinfected daily.

A freshly laundered towel will be provided for each patron.

Head rests of barber chairs will be covered with a clean towel or paper for each patron.

All brushes, combs, razors, clippers and other tools must be sterilized after each separate use. When practicable, sterilization will be accomplished by immersing the article in an antiseptic solution for at least 3 minutes. A 5 per cent lysol solution is to be preferred (5 per cent lysol and 95 per cent water).

The use of powder puffs, sponges and neck dusters is prohibited.

The use of shaving cups in common is prohibited. Shaving cream or powder only will be used.

The purpose of these regulations is, of course, to prevent the spread of disease. It would be well if all civilian barber shops were required to observe these rules.

DISPOSAL OF WASTES.

Soil Pollution. Life in camp brings men in close contact with the soil. When the ground becomes polluted men may become diseased. Many camp infections have been traced to contact with polluted soil. Germs are transmitted by dust, flies, or by direct contact with the soil.

Intestinal diseases are often caused by polluted soil and respiratory diseases may result from the same cause. Soil becomes polluted by excretions of men and animals and by scattering scraps of food upon the ground. The proper disposal of these wastes so as not to pollute the soil is explained in paragraphs which follow.

Human Excrement.

The disposal of human excrement is one of the most urgent problems of military sanitation. Promiscuous defacation must be discouraged by rigorous measures, and by all men required to repair to the latrines both night and day. The

"privy" system, so characteristic of country life, is too unsanitary to be tolerated under whatever conditions in military operations. The objection to the privy is that the excreta is completely accessible to flies, which carry germs from the latrine to the kitchen.

Latrines.

Types of Latrines. The simplest type of field latrine is a trench, 18 to 24 inches wide, and as deep as practicable (usually 5 to 8 feet), provided with a bar or rail on which the user rests his weight (Plate 4). Often no bar is provided, the users straddling the trench. The excreta is covered with dry earth, scoops being provided, and each man is required to cover his own excreta. When the pit has been filled to within about 12 inches of the surface, it is discontinued and filled flush with earth. In temporary camps straddle pits are usually made narrower and shallower, 12 to 18 inches wide and 18 inches to 2½ feet deep. During a halt while on a march a shallow hole may be dug with the heel or bayonet and covered after use. The pit should be on the opposite side of camp

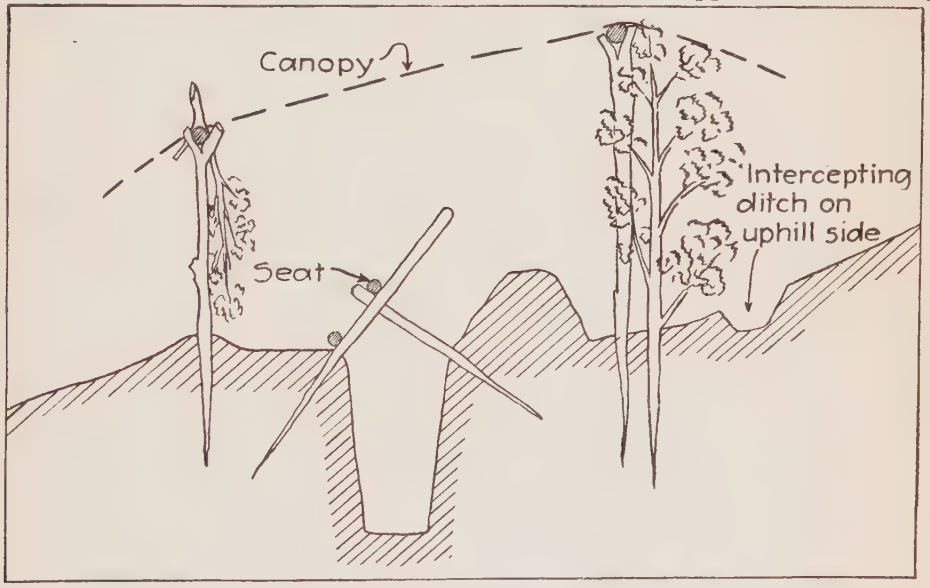


Plate 4. Dry Earth Latrine Pit.

from the kitchens, as far as practicable from any source of water supply, and at least 75 feet from the nearest tent or other quarters. They should be on high ground or else storm water should be excluded from the pit by an intercepting or drainage ditch on the high side, as otherwise the pit might overflow and excreta escape during a heavy rain. For the sake of privacy latrines should be screened, and preferably provided also with shelter from rain. An orderly should be on duty at the latrine to keep it clean. At night lanterns should be provided sufficient to enable the men to find the latrine and to see the pit. Crude oil, sprayed over the sides and bottom of the pit will discourage flies. Another desirable practice is to burn out the pit daily with straw and crude oil, about 1 gallon of oil and 15 pounds of straw to each company pit.

During the fly season any form of open pit is objectionable, as the excrement is seldom completely covered. Board covers with removable sections, or box seats for the pit, should be installed. The edge of the pit should be curbed to prevent caving, to provide a close fit for the box and to prevent passage of flies. The back of the box should be sloped to the rear to prevent fouling with excreta, and a strip of sheet metal placed in front (inside) to divert urine into the pit. The holes should be oval, about 6 by 12 inches, rather than round, and

provided with closefitting, hinged, self-closing covers. Covers are made self-closing by means of a longitudinal bar, which does not allow them to be raised to a vertical position. They thus close by their own weight when the user leaves the seat. This arrangement also prevents the men standing on the seats. (Plate 5.)

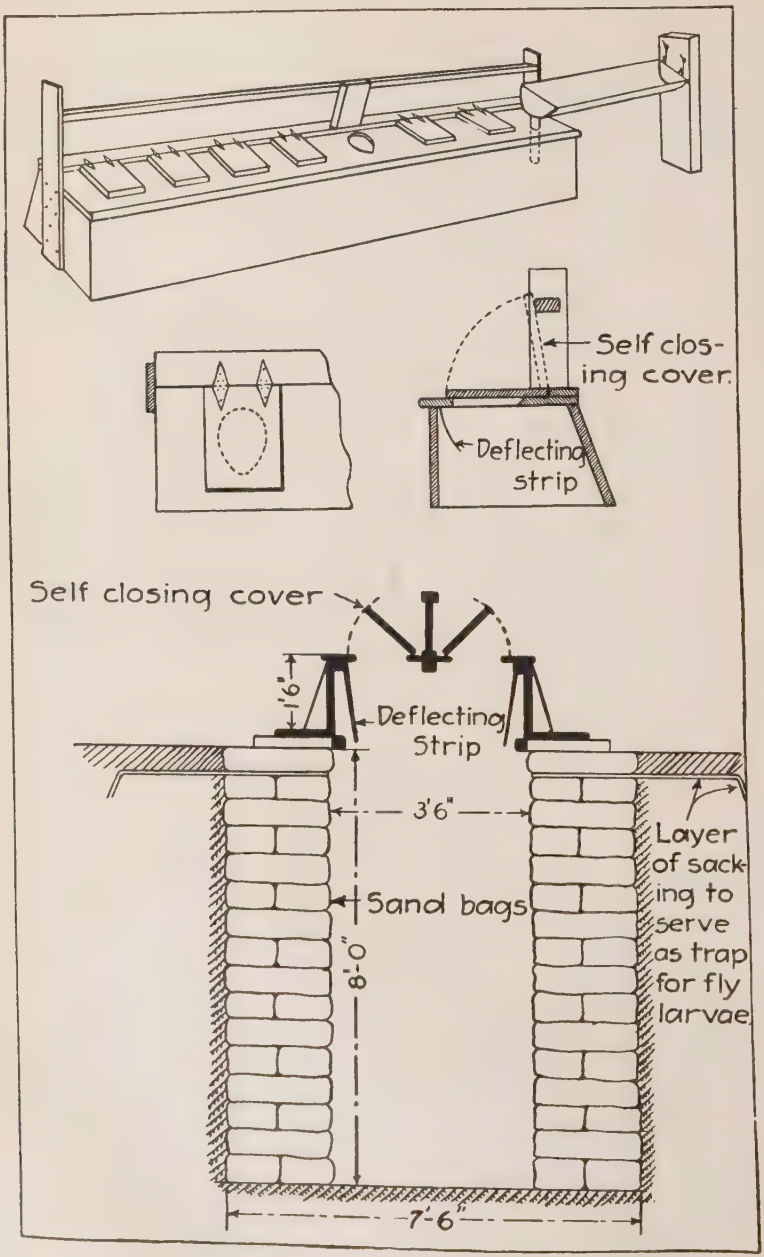


Plate 5. Fly-Proof Latrines.

A urinal trough of galvanized iron, emptying into the pit should be provided. When practicable latrines should be inside a rough building, screened if practicable, or else kept as dark as possible since flies are not attracted to dark places. The pit, at least, should always be dark. The bottom and sides of the

pit should be sprayed or the pit burned out, as in the case of the open pit. If the box be removed for disinfecting, care should be taken not to break down the edges of the pit. It is possible to spray or even burn out a pit without removing the box. The urinal trough should be scrubbed and oiled, especially if made of wood.

Cans are frequently employed in hasty latrines without fly-tight covers. In such cases each user should cover the excreta with dry earth. Dry earth cans are often preferred to straddle pits in trench warfare, where they must be used in close proximity to the troops. They are usually less offensive, do not pollute the soil, and are not subject to flooding in case of a heavy rain. They should be of a size and shape to permit convenient removal to a distance, as the cans will usually not be emptied into other receptacles at the latrine. When dry earth cans are provided a satisfactory form of urinal pit is about 3 feet in each dimension filled with stone to near the top and then covered with straw and earth. A funnel or hopper and pipe convey the urine into the pit, and the device is fly-proof if a tuft of grass be placed in the funnel.

Urine cans (of a proper height) should be placed in company streets or near the entrances of shelters, at night, and their positions marked by lanterns. They should be removed and emptied at reveille and burned out or sprayed. If night cans are not provided and marked so that they can be easily found in the dark, men are almost sure to urinate on the ground.

Latrine seats should be washed daily, and disinfected at least once a week with creosol solution, or other disinfectant.

Closing Pit Latrines. When a pit latrine is filled with excreta to within 2 feet of the surface of the ground it should be filled with earth to within 6 inches of the surface and covered with a layer of burlap soaked in crude oil, extending 3 feet beyond all edges of the pit. It is then entirely covered with earth and the location marked.

Kitchen Garbage.

Garbage may be collected in metal cans with tight covers. The exterior of the can and stand should be kept clean and screened against flies if practicable. One method of garbage disposal is to cart it away in cans or in an approved type of cart and burn it in a large incinerator, which serves the whole garrison or camp. Regulations prohibit the transfer of garbage from can to can during the collection at company kitchens, as this practice invariably results in spilling and consequent pollution of the ground and attraction of flies.

Incinerators. When not carted away garbage may be burned in an incinerator. The simplest form of garbage incinerator is a shallow pit lined with stones. A wall of rock is built around three sides of the pit, the other side being left open for draft. (Plate 6.) Suitable dimensions for a company pit are 3 by 4½ feet by 1 foot deep. The pit may also be built in a circular form, about 4½ or 5 feet in diameter, with a mound of rock in the center, against which the fuel is placed. (Plate 6.) In any of these types the fuel is placed in the pit. Dry or solid garbage is placed on the fire, liquid garbage is evaporated by pouring it slowly upon the heated stones. A closed incinerator may be built by placing a barrel in a stone-lined pit, covering it over with mud and burning out the barrel. A draft (chimney) is provided, and openings for the introduction of fuel and garbage. Still another type is a frustrum of a cone, of sheet metal or sod, placed on a rock-filled pit.

Liquid Garbage. Liquid garbage may be poured into soakage pits in porous soil. A good type is made with a cask, open at the bottom and partially buried in a rock or sand-filled pit. The barrel should be provided with a cover. The liquid refuse may be passed through an improvised grease trap, which facilitates disposal by soakage, while the grease saved is of value.

Fuel is conserved by care in operating the incinerator. Solid garbage should be separated from the liquids, and placed on the fire a little at a time, where

it soon dries out and furnishes fuel for its own incineration. Avoid smothering the fire.

Incinerators should be utilized as water heaters (for baths and laundry) whenever practicable.

Burial of Refuse. When incineration is impracticable, as will usually be the case on the march or during times of great activity at the front, all putrefactive wastes are disposed of by burial. Non-putrefactive material may be placed on an open dump, well to the windward of camp. Tin cans should first be burned, because of the organic matter clinging to them.

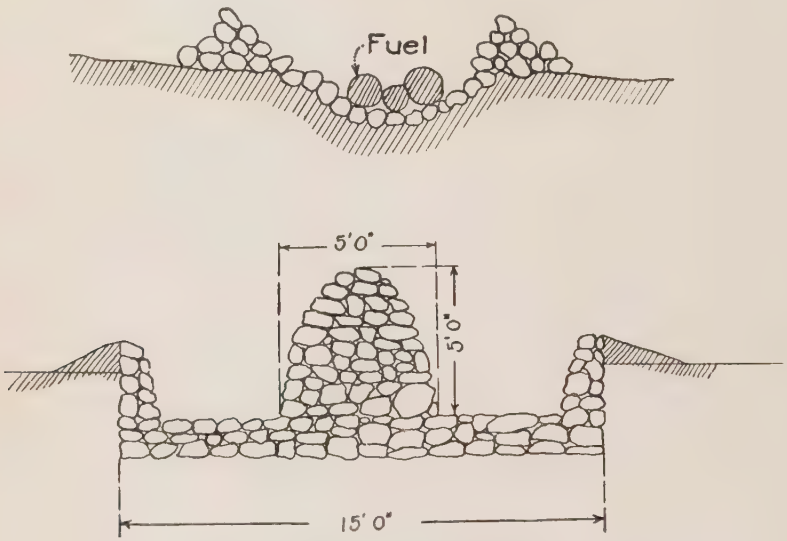


Plate 6. Pit Incinerators.

Manure.

Manure is the favorite breeding place of flies. It should be removed from stables and picket lines daily and disposed of at a dump at least 1 mile from human habitation. It may be sold to contractors as fertilizer, but they are required to carry on their work so as to meet all sanitary requirements. Where not taken by contractors manure may be treated as follows:

It may be burned (incinerated) with or without the addition of crude oil. Large quantities of manure can be burned on iron frames made of steel rails supported about 15 inches above the ground by brick or rock pillars.

Manure may be used as fertilizer on the military reservation. It is spread in a thin layer so that the sun will kill the fly larvæ. However, before being used as a fertilizer it is better that it be cured as described further on.

In a wet climate, where it cannot be readily burned, or where it is to be cured for use as fertilizer, manure is heaped in large compact piles so that it will rot and heat. The heat kills the fly larvæ.

Where more economical of time and labor, as in one night camps, manure may be buried just before breaking camp.

Picket lines should be sprinkled with crude oil and burned off weekly. Animals should be kept segregated and away from that part of the camp occupied by the troops, and downstream from them, or on lower ground.

CAMP SITES.

Requirements of a Good Camp Site.

In general location of camp sites will usually be fixed by strategical and tactical requirements, but within the limitations thus imposed, a sanitary site

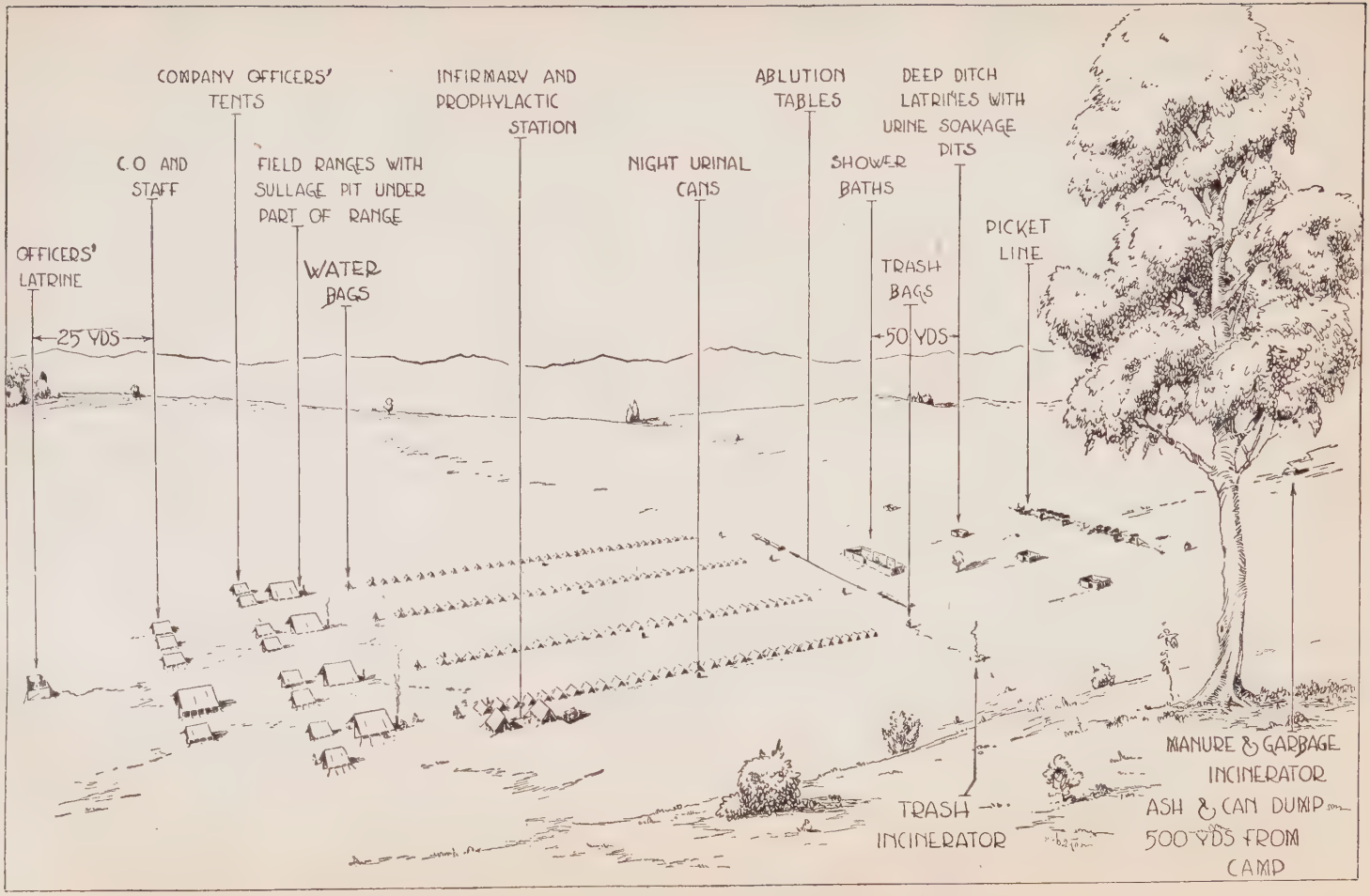


Plate 7. Diagram of Proper Sanitary Layout for a Camp.

should be selected. If the camp is to be occupied for an extended period, an inquiry should be made in advance as to sanitary conditions in the locality. Sites which have been previously occupied within a year should generally be avoided, as they are apt to be polluted.

The available space should be sufficient to accommodate the command without crowding. Elevated ground is always desirable, as being better drained than low ground. A gentle slope, sufficient to insure positive drainage will answer; it is not necessary to place the camp on top of a hill. The soil should preferably be firm and porous, and covered with grass, by which excessive mud in wet weather and dust in dry weather are avoided and liquid wastes are more easily disposed of by seepage. The ground water will also be lower in such a soil, as a rule. There should be no marshes or standing water, favorable for the breeding of mosquitoes, very close to the camp. A prevailing wind in one direction is desirable, as it aids in keeping insects away, especially flies from the latrines and picket lines, which should all be placed on the leeward side of the camp. Violent winds are undesirable in winter because of cold and in summer because of dust. Shelter from such winds is offered by leeward slopes and woods. A south slope (in the northern hemisphere) affords more sunlight the year round.

An open wood (free from underbrush and not too dense) makes an excellent camp site, the trees providing a wind-brake and shelter from the sun in hot weather, as well as fuel for the camp. For purposes of concealment camps near the front are usually located in woods whenever practicable. A very dense wood has the disadvantages of being poorly sunned and ventilated, which renders it damp and consequently unsanitary in rainy weather.

A camp site should be accessible from the main routes of transportation, but it is not well to be on or astride of an important road, because of the dust and disturbances resulting from passing traffic.

A supply of water is essential and fuel desirable, especially for small camps in mobile warfare, when it is impracticable to provide an artificial supply. If the water supply is a stream, the stream should be guarded against pollution. Localities should be designated in order, beginning upstream and going down, for water for drinking and cooking, watering animals, bathing, laundry, and disposal of waste.

The details of interior arrangement of the camp will depend largely on circumstances, though a number of type plans for various organizations have been proposed. For the sake of compactness the camp should generally be approximately square. The officers tents and kitchens should be on the windward flank (if there is one), the latrines being on the opposite flank, with the company tents between. (Plate 7).

Tents should be individually ditched, especially if they are not provided with floors. The walls should be rolled up during the absence of the occupants, and bedding should be systematically exposed to sun and air. Tents are best heated where necessary by Sibley stoves (of a conical shape) placed in sandboxes.

Police of Camp.

None but the most inefficient commander will leave a camp site without thoroughly policing the locality, disposing of all refuse and filling all latrine pits. The same site may be used by other troops. There are many instances where units have been sent back to police properly a camp site which was left in an unsanitary condition.

Bivouacs.

Although "camp" is the general term for a place where men and animals are quartered in the field, it usually has a specific application to a place that is to be occupied at least several days. The term conveys the impression of more or less permanence and possible elaboration.

"Bivouac" is the term used to designate a place where soldiers spend overnight halts, or in the case of night marches, daylight halts, during the progress of an extended march or maneuver.

In general the requirements of a bivouac site are the same as those for a more permanent camp site. However, immediate need for rest and the temporary nature of the bivouac will justify dispensing with many of the advantages usually sought, if they are not readily obtainable.

In campaign or maneuver, it is seldom possible to bivouac in a regular formation. Enemy aviation causes the bivouacs of marching columns to seek the concealment of trees, and to avoid alignment and regularity. On peace time marches made under no assumed situation requiring concealment, troops may, if time permits, be bivouacked with consideration given to uniformity and correct alignment. Speed in affording rest to men and animals is the primary consideration.

The rules of sanitation apply to a bivouac in the same manner as to a more permanent camp. Methods of satisfying these rules are of necessity less elaborate. Bivouac sites must be thoroughly policed before departing therefrom.

Billets.

Billeting is never resorted to in our country, but is the common method of quartering troops in Europe. Its advantage is the ready availability of quarters. Its disadvantages are scattering and loss of control of the command, a too intimate association with the inhabitants, overcrowding and exposure to disease, especially venereal, and in general—difficult sanitary conditions. Billeting is a great hardship to the inhabitants. The usual rules of sanitation in camp apply to billeting to an even greater extent, as they are more difficult to enforce.

Questions.

1. What class of epidemic diseases results from overcrowding in quarters?
2. How many square feet of floor space should be provided for each soldier?
3. How many men may be assigned to a tent in winter?
4. How may a subterranean shelter be ventilated?
5. How may flies and mosquitoes be exterminated? How may men be protected from them?
6. What precautions are necessary as to sleeping quarters?
7. What is the correct temperature for living quarters?
8. What is the purpose of the army regulations as to barber shops?
9. Why is polluted soil dangerous to health?
10. What are the common causes of soil pollution?
11. How is human excrement disposed of in a one-night camp?
12. Draw a diagram of a fly-proof latrine.
13. How may latrine pits be cared for so as to prevent the collecting of flies?
14. How may kitchen garbage be disposed of in a one-night camp? In a camp which is to be occupied for 15 days?
15. Discuss the methods for the sanitary disposal of manure.
16. What are the requirements of a good camp site?
17. Draw a diagram of a proper general layout for company camp.
18. How does a bivouac differ from a camp?
19. When should regularity be avoided in a bivouac formation?
20. Do the rules of sanitation suitable for a camp apply with equal force to a bivouac?
21. What is billeting? What are its advantages and disadvantages?

Practical Exercises.

Exercise 1. Inspection of the accommodations of a model barrack or dormitory and camp.

Exercise 2. The following models of latrines and incinerators should be constructed and exhibited where practicable:

Straddle trench type of latrine.

Fly-proof latrine.

Horseshoe type of rock-lined incinerator.

Circular pit incinerator with mound of rock in center and pit lined with rock.

CHAPTER IV.

DISEASE.

Physical Inspections.

Close physical inspections of the persons of the men are required to be made once a month by medical officers in company with organization commanders. They should be conducted in such a manner as not to offend the sensibilities of the men. At these physical inspections officers should be sympathetic with men who are suffering, and should never fail to commend those who are keeping themselves clean and in good condition for service.

Every officer should form the habit of making continual critical observation of his men. Too many troop officers will instantly observe a uniform which is dirty or torn, or a rifle which is not clean, while overlooking the pale skin and dull eyes of the man. Yet the condition of the skin of the man is of far more importance than the condition of the cloth of his uniform. This habit of observation on the part of officers is easily cultivated, and has a most direct and important bearing on the general efficiency of the command.

Significance of the Sick Report.

The daily sick report, the number of men actually on the sick list at any time, is a most important indication of the state of health of a command. It is as significant and important as news of the movements of the enemy. It is a danger signal which should be closely watched by all officers in command of troops, or responsible for their efficiency. The warning conveyed by a mounting sick list must not be disregarded, and there is no excuse for being caught unawares.

A sick rate of 1 to 2 per cent of the total strength, varying according to the conditions of service and the seasoning of the troops, may be regarded as normal. That is to say that in a well-seasoned, healthy command, favorably situated, a daily sick rate of not over 1 per cent is not alarming. Under trying conditions a rate of 2 per cent may be expected. Amongst new troops, especially when they are first assembled, the rate may arise to 2½ or 3 per cent.

A sick rate of 3 to 4 per cent is alarming. It indicates that the vitality of the command is low, and calls for prompt investigation of general sanitary conditions. A sick rate of 4 to 5 per cent is a plain danger signal that an outbreak of epidemic disease is imminent, and drastic measures of prevention should be taken. A rate exceeding 5 per cent generally means an epidemic of one or more diseases.

A prevalence of mild infections, such as colds, diarrhœa, etc., is also a danger signal of low vitality and possible outbreak.

If the sick rate can be held to less than 1 per cent the vitality of the command is high, and it is ready to render effective service or respond to any demand. An officer who can hold his daily sick report to less than 1 per cent, under service conditions, is performing the highest patriotic duty. His men are fit for all service.

The Causes of Disease.

In order to prevent disease it is necessary that we know its *cause*. Otherwise we are of course helpless. In recent years, largely from our experiences in war, we have learned much about the causes of disease.

Germs. Nearly all preventable, communicable diseases are caused by tiny living organisms, so small that they can be seen only by a powerful microscope. These organisms are called germs, and there is a germ characteristic of each

disease. In some cases the specific germ is known, in others it is not. In any case the sick man himself is the original source of infection, and air, water, food, insects, etc., are merely distributing agents which carry the germs from the sick to well persons. Hence the importance of isolating the sick, and disposing of their excreta, clothing, etc.

The entrance of disease germs into the body does not necessarily result in disease, in fact not in the majority of cases. The healthy human body is strongly fortified by nature against attacks of disease. Hence the importance of personal hygiene and all other measures designed to maintain the health of the troops. Good general health and good habits form the best insurance against diseases of all kinds.

Means of Transmission.

The more common diseases to which armies are subject are not peculiarly military in their nature, but are found also in civil communities. The spread of these diseases is promoted by the overcrowding which is too often incident to military operations. They are, for the most part, included in four general classes, according to the way in which they are transmitted, as follows:

Those transmitted through the alimentary or intestinal tract, sometimes called "water-borne" diseases; such as typhoid and paratyphoid fevers, dysentery and cholera.

Those transmitted through the respiratory (breathing) passages, such as influenza (flu), bronchitis, measles, diphtheria, scarlet fever, meningitis, pulmonary tuberculosis and pneumonia. These are known as the respiratory diseases.

Those transmitted by the bite of insects, such as malarial, yellow, dengue, typhus and trench fevers, and bubonic plague.

Those transmitted by direct contact with infected persons, soil or other objects, such as the venereal diseases, tetanus and hookworm.

The Symptoms of Communicable Diseases.

Diseases are identified by the presence of the specific germs which cause them. This can be done only by the doctor with his "germ culture" and microscope. But they may also be identified by certain appearances or sensations of the patients, which usually occur in the early stages of the diseases, such as a rash on the skin, sore throat, fever, etc. These signs are known as the "symptoms" of the diseases, and in various combinations enable the doctors to identify or "diagnose" the diseases. They are nature's warning signals, which all may see and which all should heed.

The layman, that is all of us who are not doctors, can hardly expect to recognize all of the many diseases from their symptoms—even the doctors frequently make mistakes. But if one knows in a general way what these symptoms are, and their number is not very great, he can properly assume that a person exhibiting these symptoms is *probably* suffering from a communicable disease though he may not know just which disease it is, and he should see that the proper precautions are taken. If it turns out that he is mistaken in his suspicion, no harm has been done.

We shall not discuss in detail the particular combinations of symptoms which identify particular diseases. It is not safe for a layman to attempt "diagnosis." But let us see what are the more important danger signals by which nature gives warning of the presence of communicable disease.

Fever. Fever, or rise of temperature above normal, is the most common symptom of disease. A man who is feverish is usually aware of the fact, and should give notice of it for his own sake and that of his comrades. Fever may be detected by the characteristic "feverish glare" of the eyes and by flushed and hot skin. A "clinical thermometer" will settle the question beyond doubt. Insert under the tongue or in the rectum.

Eruptions of the Skin. These are also common symptoms of communicable diseases, many of which have an eruption or rash of characteristic appearance in their early stages, blisters, or pustules, etc.

Pulse. Any departure from the usual rate or intensity of the pulse may be a symptom. A rapid pulse is of course a common accompaniment of fever.

Other Symptoms. Other symptoms of communicable disease are:

Sore throat.	Coughing.
Coated tongue or throat.	Vomiting.
Fetid breath.	Excessive sweating.
Inflamed or watery eyes.	Pallor of the skin.
Backache.	Chill.
Headache.	Aching of the joints.
Nausea.	Swelling of salivary glands.
Colds.	Etc., etc.

It is to be remarked that communicable diseases are characterized by a *combination* of symptoms. Thus a fever or rise of temperature if *unaccompanied by other symptoms* will probably be due to some minor derangement. If it be accompanied by an eruption of the skin the possibility of its being a symptom of communicable disease is greatly increased, and if to this we add sore throat it becomes highly probable that the patient is suffering from communicable disease. In any event it is well to take no chances but to bring the case promptly to the attention of a doctor.

General Preventive Measures.

Knowledge is power, and armed with a knowledge of the foregoing facts the prevention of disease, so far as the layman's part in it is concerned, becomes merely the application of a few rules of ordinary common sense. When we know definitely the *cause* of a disease, we can take definite measures to prevent it. Lacking such knowledge our ancestors of many years ago were almost helpless in the presence of an epidemic. They did not know how to fight the enemy or ward off the unseen hand of death. To-day we know how to fight and the hand is no longer unseen.

There are many precautionary measures to prevent the outbreak and the spread of disease. All the rules of personal hygiene, which we have heretofore discussed, are included amongst these measures. In a general way they may be divided into three classes, as follows:

1. All measures designed to maintain the health and vitality of the individual, thereby reducing his susceptibility to disease. To a great extent this is the duty of the individual himself, and the things he should do or refrain from doing are discussed under Personal Hygiene.

2. Conferring personal immunity upon the individual. This is accomplished by means of prophylaxis, as hereinafter explained.

3. Measures designed to destroy, reduce, and prevent the spread of the micro-organisms which cause communicable disease.

This third class includes a number of very important measures, in which the individual must play his part. A communicable disease is spread by the transmission of germs from a sick person to a well person, and this must be prevented. What are the common sense measures by which it may be done?

Immunity. Prophylaxis. Not all the disease germs which enter our bodies actually cause disease, in fact in the majority of cases they do not. Our bodies have the power of overcoming these germs and casting them out. We are exactly like a fort. If the defenses are strong and well kept up, and the garrison brave and active, the attacker is usually repulsed. But if the defenses are broken down and neglected and the garrison weak and dispirited the enemy

easily captures the stronghold. In plain words this means that if we are perfectly healthy and our vitality is high we have great power of resisting disease—we are less apt to be stricken and more apt to recover if we are stricken. *To keep up our general health and strength is accordingly the best insurance against all forms of disease.*

Certain diseases have the peculiar property of conferring *immunity against future attacks of the same disease.* If you have had yellow fever and recovered it is practically certain that you will never have it again, no matter how often you are exposed to it. You have become what we call *immune.*

Acting on this hint the doctors have learned to protect us against certain dangerous diseases by actually inoculating us with a mild form of the disease, which renders us immune to real attacks. This is one of the greatest achievements of preventive hygiene. The medical profession is continuing its progress in this line. At present they have discovered almost certain preventives of smallpox, typhoid and paratyphoid fevers. The treatment is known as vaccination or prophylaxis (prevention), and in the army all soldiers are required to take these treatments.

In other cases we are protected against disease by inoculations of anti-toxins which fight the germs, usually for a rather short period, and either ward off or reduce the severity of diseases. A notable example of this treatment is the antitetanic prophylactic serum given to the wounded to ward off lockjaw. Some of these treatments are given prior to the outbreak of disease, others during its course.

Quarantine. When an individual shows signs of a communicable disease it will evidently be very wise to separate him from other persons and to place him where it will be possible to prevent the spread of germs from him to others. It will evidently also be wise, in many cases, to close the premises where the patient has lived, to take possession of all his effects, or any utensils he may have used and to fumigate or disinfect all of these to destroy any germs there may possibly be on them. It will further be advisable similarly to isolate or at least keep under observation, all other persons who may have been exposed—for example men who have been sleeping near the patient. These "suspects" should of course be kept away from those known to have the disease.

These precautions taken as a whole, are known as "quarantine." The exact procedure will vary somewhat with the disease and the circumstances, and it will be decided by the doctors.

Other Precautionary Measures. The doctors do not always wait until a marked case of disease develops. If it be known that there is disease in a neighboring town they may place the town "off limits" for soldiers, and perhaps isolate and examine men who have been in the town recently. They may disinfect all quarters, and perhaps even physically examine all the men of an organization and isolate all "suspects."

Many persons carry the germs of disease without themselves being sick or exhibiting any of the symptoms of the disease. Such persons, known as "carriers," are extremely dangerous. They can be detected only by a medical examination. In particular all persons who have anything to do with the preparation or serving of food should be frequently examined to make sure that they are not carrying disease germs.

New individuals coming into any community usually furnish new sources of infection, and are themselves more susceptible to the diseases of the community than its older inhabitants. Accordingly men of different commands should not be quartered together, and recruits or replacements should be quartered separately from the older members of the command, until they have adjusted themselves to their new surroundings.

Because soldiers live in rather intimate contact, communicable diseases naturally will spread very easily if precautions be not taken. On the other hand

soldiers are far above the average in health and strength because they are selected men, and military discipline makes is possible to enforce measures of precaution much better than in civil life where there is no such discipline. As a consequence a military organization usually enjoys much better health than an equal number of average civilians.

In order to give a definite picture of how ignorance and carelessness may spread disease, let us quote a single case.

Mr. Jones, an ignorant man, gets wet in a rainstorm, and does not change his clothes and shoes because he is too lazy. And so he catches a "cold," which makes him feel rather miserable and lowers his resistance. He goes to town, where he drinks some water he knows nothing about, or perhaps eats some raw oysters. The water came from a polluted well, or the oysters have been feeding on polluted sewage. Mr. Jones doesn't know this.

After a time he begins to feel quite ill. He should go at once to a doctor, but he thinks his illness will pass and he doesn't report it. *He has typhoid fever* but he doesn't realize it.

Jones goes out and defacates on the ground. At the latrine there are screens and seat covers to keep out flies, and every day the pit is oiled, or in town the sewage is carried away by water and effectively disposed of. But the flies visit Jones' feces on the ground, and they then fly in a window somewhere and deposit the typhoid germs from Jones' feces on Mr. Smith's food. And Smith gets typhoid. "Mr. Smith" is only one of a number of unfortunates to whom Jones has transmitted his disease. An epidemic of typhoid might result from the ignorance or carelessness of one man.

Common Diseases and Means of Prevention.

Following are some of the more usual diseases to which troops are subject, their causes and the preventive measures to be adopted in each case:

Typhoid Fever. In former wars this disease was known as the "scourge of armies." To-day, thanks to effective prophylaxis, it has almost been eliminated. It is caused by a germ excreted from the bowels of infected persons, and may be transmitted chiefly by personal contact, also by water, dust, flies, uncooked food, unclean utensils, clothing, bedding, etc. Certain persons, known as "carriers," excrete the germs, although they are not at the time suffering from the disease. The mortality is relatively high and the period of disability usually at least three months. Young persons are more susceptible to the disease than older persons. While the possibilities of infection cannot be entirely removed, every effort should be made to isolate patients, to detect "carriers," to dispose of all waste, to insure a pure water supply, and to suppress flies. Prophylaxis is an almost sure preventive. The remarkable benefits derived from the prophylaxis or inoculation against typhoid fever are shown by the fact that the deaths from this cause during the Spanish-American War were 9 per 1000, when there was no prophylaxis, while during the World War deaths from the same cause were .05 per 1000, and some of these were among those who had not been inoculated before the disease attacked them. However the fact that men have been inoculated does not eliminate the necessity for using other precautions, which are:

Water purification.

Food protected from flies and thoroughly cooked.

Removal of typhoid carriers from duty in the kitchen or mess hall.

Scrupulous cleanliness of utensils, furniture and surroundings where food is prepared or served.

Elimination of flies.

Paratyphoid Fever. This disease is similar to typhoid, but less severe. It is spread in the same way and the same protective measures are adopted. The inoculations against typhoid and paratyphoid are combined.

Dysentery. This is a general term for any inflammatory disease of the bowels or intestines. The preventive measures are the same as those for typhoid fever, except that there is no prophylaxis.

Influenza. Influenza is present at all times in all countries but about once every generation an epidemic occurs. The seriousness of this disease in epidemic form will be realized from the fact that during 1918 we had in our army 604,000 cases of influenza, of whom 22,000 died. The disease is passed from one person to another by coughing, spitting, dust, clothing, and in almost every conceivable manner. It is of utmost importance to anticipate an outbreak of influenza by putting in force the strictest sanitary measures. These measures are:

Prevention of overcrowding in buildings such as theaters.

Spacing of men in mess halls so that a man cannot cough in his neighbor's face.

Ample ventilation of tents or barracks by day or night.

Spacing bunks not less than 5 feet apart and requiring men to sleep head to foot.

Curtaining off each man's bunk or hanging a sheet or shelter half between adjacent bunks.

Emphasizing the following rules of health:

1. Sterilize all mess equipment.
2. See that men do not expose themselves by dressing in cold bath houses, by wearing insufficient clothing, or by sitting or lying on the ground.
3. Do not use a common drinking cup.
4. Do not spit on the floor.
5. Keep away from rooms while they are being swept. Vacuum cleaners are disease preventers in that they gather up germs instead of scattering them, as a broom does.

Meningitis. Meningitis is a disease dreaded by military communities not so much because of the number of cases which occur (the number is small) but because of its high death rate, which was 40 per cent during the World War. It stood second as a cause of death among American troops. This disease is spread by diseased persons and carriers. The germs are harbored in the nose and throat. Coughing, sneezing and spitting, hands soiled with the excretions from the nose and throat, and flies that feed on the sputum, are all means of transmitting meningitis. The means of prevention are the elimination of carriers from a command and the execution of the measures discussed in the paragraph on "Influenza."

Pneumonia. This dread disease is the present "scourge of armies" and in the World War was responsible for five-sixths of all deaths from disease in the American Army. The death rate is high, and no sure means of prevention is yet known. The germs are always present, and anything which lowers the vitality predisposes to the disease. The chief contributing causes are overcrowding in quarters, lack of sufficient air space and proper ventilation, wetting or chilling of the body, especially the feet, dissipation of any kind. The preventive measures are those prescribed for "Influenza."

Mumps. Mumps is one of the respiratory diseases and the means of transmission and prevention are the same.

Typhus Fever. This disease, sometimes known as "camp fever" or "army fever," has been responsible for a high mortality in certain foreign armies as well as amongst the civil populations. It has been less prevalent in our own army. It is transmitted by the bite of the body louse and is accordingly prevented by avoiding overcrowding, by delousing and disinfestation of clothing.

Tetanus or Lock-Jaw. The germs of this disease are present in the soil, and are hence apt to enter wounds. All wounded men should be given anti-tetanic serum, which is a very effective preventive.

Tuberculosis or Consumption. While many parts of the body are subject to this disease, the term is usually applied to the pulmonary type (lung consumption). It is transmitted by the sputum (saliva) of patients, and the preventive measures, as for all pulmonary diseases, are avoidance of overcrowding, ample air space and ventilation.

Measles. This disease, while not very serious in itself, so far as concerns the individual, is especially dangerous to armies, first because it is the most contagious or easily transmitted of all diseases, and second because it predisposes to an attack of pneumonia. When measles has appeared the command should be daily inspected for new cases or suspects, who should be promptly isolated. Air space and ventilation are the preventives.

Other diseases transmitted through the respiratory tract, but which are of relatively infrequent occurrence amongst adults, are diphtheria, scarlet fever, and whooping cough.

Small-Pox. The well-known small-pox vaccination affords immunity from this disease. The disease is more common amongst negroes than whites.

Malarial, Dengue and Yellow Fevers. These diseases are transmitted by the bite of the mosquito, and the suppression of the insect and screening of patients are the modes of prevention. Quinine affords a degree of immunity from malaria.

Trench-Foot, Frost Bite or Chilblain. This non-contagious disease results from prolonged exposure to cold and wet, especially when combined with low vitality and poor circulation. It is avoided by wearing well-fitting shoes, thick socks and loose leggings, by keeping the feet dry, and by bathing and massaging them. Dry standing places should be provided and if this be impracticable the men should have rubber boots. Prolonged exposure is to be avoided. Before entering wet, cold trenches the men should rub their feet and legs with whale oil or frostbite grease.

Hookworm Disease. A large number of recruits from southern states (especially from localities where shoes are not habitually worn) are found to be infected with hookworm disease. About 90 per cent of infections occur through the skin. The larvæ passes to the intestinal tract. The principal measures for the prevention of this disease are abatement of soil pollution, cleanliness of food, water and person, and the keeping of the bare feet off the ground.

Conjunctivitis (Trachoma). This is a highly contagious or communicable inflammatory disease of the eye. It spreads rapidly in barracks where many men are quartered and using a common washroom. It is transmitted by the common use of soap and towels. The evident means of preventing the spread of this disease is by prompt isolation of patients or suspects, and stringent regulations as to individual towels, wash cloths and soap.

Venereal Diseases. Other pestilences have steadily given way as medical science has progressed, but gonorrhea and syphilis have retained their place among the foremost causes of disability in military as in civil life, in spite of the employment of every known means of suppression. Five and one-half per cent of the men examined by the draft boards during the World War were afflicted with venereal disease of some sort. Next to influenza, gonorrhea led the list for admissions to hospitals in the United States.

Venereal diseases are of three main types: Gonorrhea (clap), syphilis (pox) and chancroid or soft chancre. Practically all cases are contracted from intercourse with a diseased woman.

After the disease has been contracted, the chances for a cure are much greater if the patient reports promptly for treatment. One authority states that if seen early almost every case of gonorrhea or syphilis responds readily to treatment, but if not seen until the disease is well established prolonged treatments are

required and the probabilities for complete cures are greatly reduced. Quack doctors and patent medicines should be avoided.

Nervous Diseases. Because of the almost continual strain and the abnormal conditions of life incident to military operations, nervous diseases are of frequent occurrence in the combatant forces. They result from a great variety of causes, including worry, anxiety, fear, homesickness, over-work and exhaustion, lack of recreation, seclusiveness and brooding, alcoholism and the drug habit, syphilis, shell shock or wounds, chronic low vitality from any cause, improper sexual or other habits, lack of regularity of life, unwholesome environment or uncongenial occupation long continued, etc. The natural preventives are good personal habits, regularity, good food, fresh air, sleep, exercise, association with comrades, wholesome recreation, and the cultivation of a cheerful frame of mind. It is the duty of all officers to keep a close watch on the daily life and habits of their men and to promote their welfare in every way, thus removing the causes which predispose to mental or nervous disorder or breakdown.

Questions.

1. What is the significance of a mounting sick report?
2. What are communicable diseases, and what causes them?
3. In what ways are diseases transmitted?
4. What are "symptoms"? Name some of the common symptoms of communicable diseases.
5. What is meant by immunity? By what natural and artificial means is immunity conferred on an individual?
6. For what diseases are there known prophylaxes which afford immunity?
7. What is quarantine?
8. What precautions are necessary to prevent the spread of typhoid fever? Influenza?
9. Why is it important that treatment for venereal disease be given soon after exposure?

CHAPTER V.

FIRST AID.

First aid includes the immediate measures for relief or precaution which are taken by a wounded or injured person or by others present, pending the arrival of a doctor, or by the medical personnel in the field.

Importance of First Aid.

To care for the wounded and restore them to health and usefulness is the business of the medical department. The wounded soldier himself, or his comrades, can do a great deal to help the doctor and to insure the wounded man's recovery. This requires a few very simple measures to be taken as soon as possible after the soldier is wounded.

One need not be a surgeon, or familiar with surgery, or medicine, to be very helpful. The things to be done are simple, and any man can learn them. But they must be done properly and promptly. These simple measures may save your own life, or the life of a comrade, so it is well worth while to learn them. These things which are done by a wounded soldier or his comrades before the medical personnel take charge of him are known as "first aid." We shall begin by describing first aid to a wounded man, and we shall then describe first aid in cases of drowning and various other common accidents or injuries.

First Aid in Civilian Life. It is well for you to remember too that it is not in wartime only, that intelligent "first aid" may save your own life or the life of some one you love. And then too any life is worth saving, even the life of an entire stranger. Even if you have never seen him before he is a fellow-being, a brother, and it is your duty and your privilege to help him at the time when he most needs help. Now our statistics and our daily newspapers show that accidents and painful or dangerous injuries occur just about as frequently in time of peace as in time of war. Often the injured person is allowed to lie on the ground unaided until the ambulance arrives. This may be a half hour or more, and then it may be too late to save him. It is better to let him lie so than to try to help him if you do not know how, but if you can take the few simple precautions we are about to tell you, you may save his life or save him from being a cripple.

First aid is not something that soldiers alone should know. It ought to be a part of the education of every citizen, because accidents occur at all times and places and under all circumstances. And to save a human life is the highest and finest service you can perform.

General Instructions.

The following general instructions should be observed in rendering first aid to a wounded or injured person:

Keep cool.

Examine his injury.

Be gentle.

Do not try to do too much.

Send for a doctor, and an ambulance if necessary, at once.

Keep the man warm. If a severely wounded man is not kept warm he will probably die. Fill canteens with hot water and place under his armpits and between his legs, always outside of clothing so as not to burn him. Wrap him in blankets. If the wound is not in the abdomen, give him a hot drink.

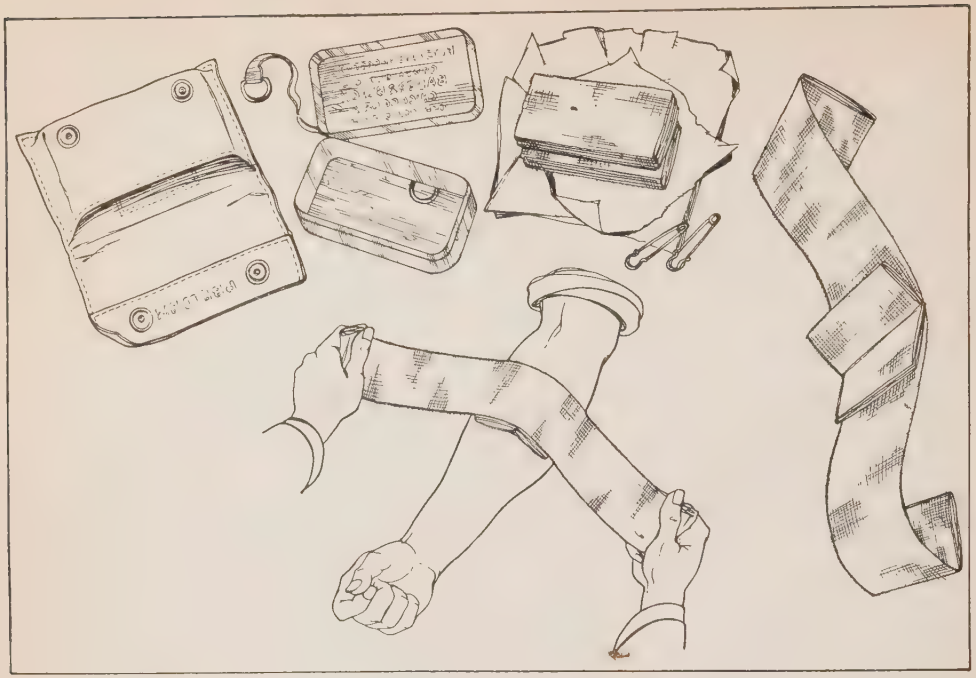


Fig. 1. Old type.

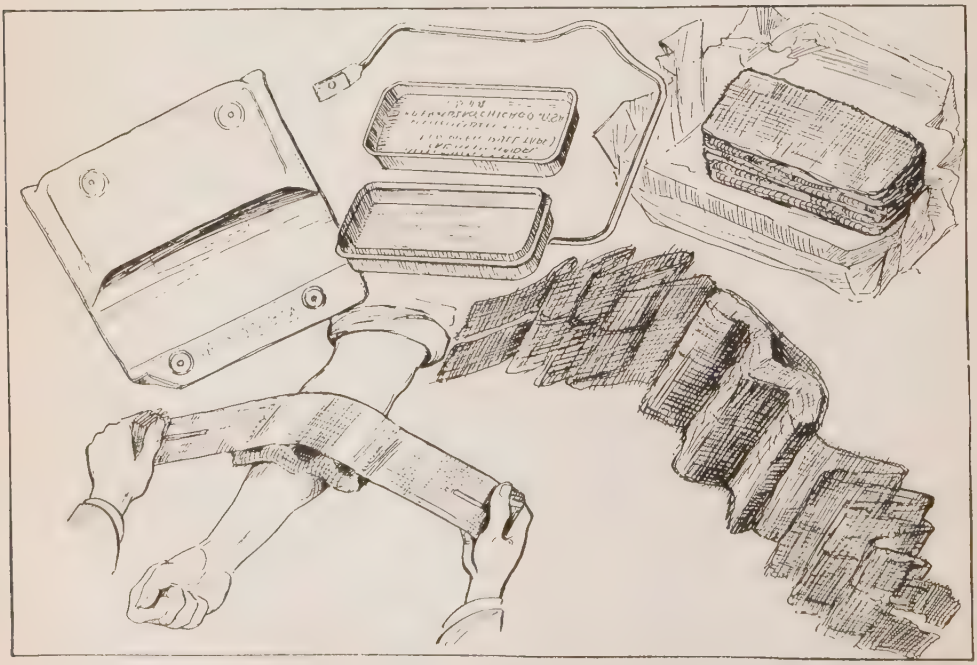


Fig. 2. New type.

Plate 8. First Aid Pouch, Packet, and Contents. Applying First Aid.

Make the patient as comfortable as possible and keep him quiet. Do not allow people to crowd around and disturb him.

Loosen tight clothing which interferes with free breathing or circulation of the blood.

First Aid Packet.

Contents. The first aid packet of the army is a little air-tight metal case, dimensions about 1 by 2½ by 4 inches. It is carried in a small web pouch attached to the soldier's cartridge belt. It is easily opened at the instant it is

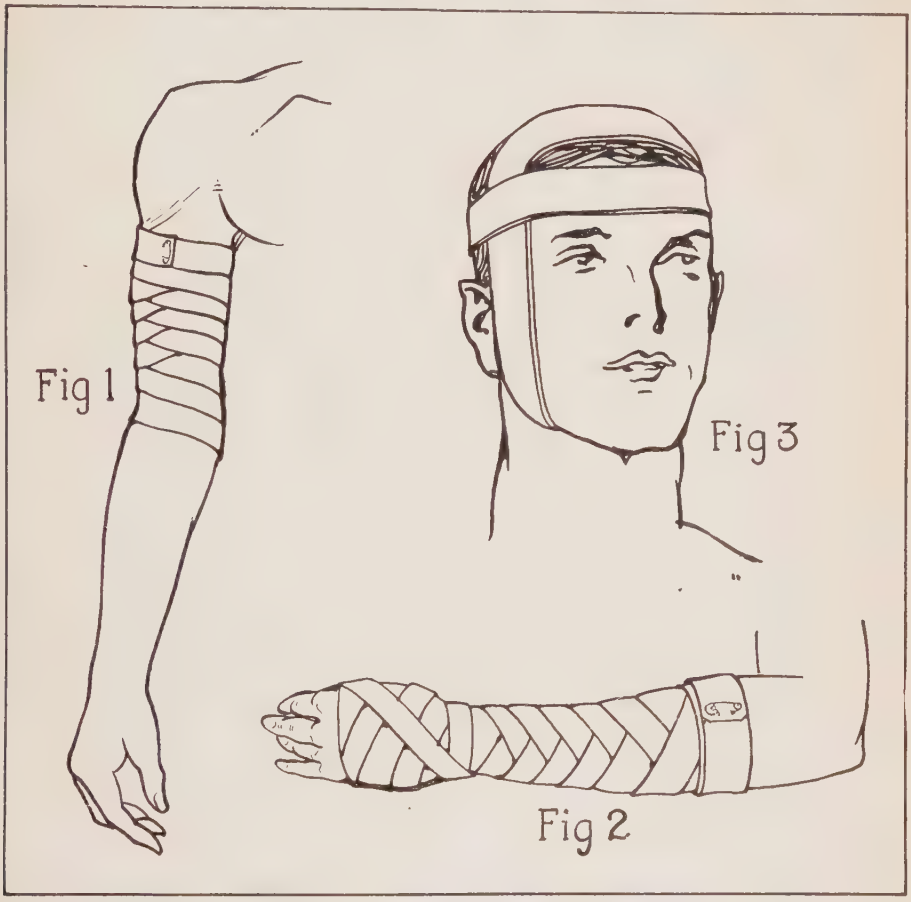


Plate 9. Bandages for Head and Arm.

to be used by tearing apart the metal case by pulling the ring attached to it. When this packet is inserted in the pouch, the ring should be "down" (at the bottom) so that when the packet is pulled out for inspection it will not be caught by the ring and accidentally opened.

The packet contains two sterile dressings, each wrapped in waxed paper. Each dressing consists of a gauze bandage (4 inches wide and 84 inches long) to which is sewed in the middle a "compress" or pad of gauze. (Fig. 1, Plate 8.) The dressing is arranged so that the compress (folded) is on the inside and a roll of the bandage is on each of the two outer sides. The two rolls may be compared to the two handles of an accordion. When the rolls are pulled the compress on the inside opens.

Two safety pins are inclosed in the packet.

Applying the Dressing. Carefully remove the paper from one of the two packages without unfolding bandage or compress, and hold by grasping the outside rolls of bandage between thumb and fingers of each hand. Open compress by pulling on the two rolls and apply inner surface of compress to wound, still holding one roll of bandage in each hand (Plate 8.) Then wrap the bandage around the compress so as to prevent it from slipping from the wound, and tie the ends of bandage together or fasten with safety pin. The second dressing may be used over the first if needed, as in the case of a large wound.

The foregoing description applies to the old first aid packet, still in common use. Fig. 2, Plate 8, shows an improved type of first aid packet. The ring,

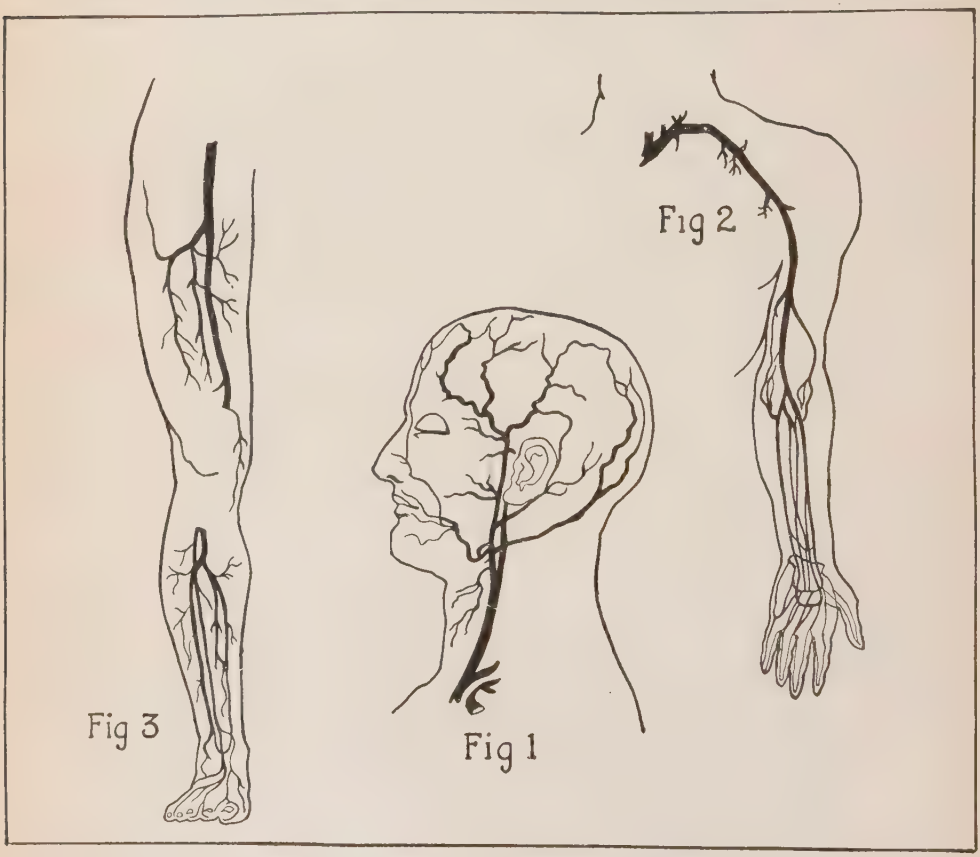


Plate 10. Location of the Main Arteries.

which sometimes caused premature opening of the packet, has been dispensed with. The packet contains a single dressing, the back of which is indicated by a piece of red paper inserted in the dressing. The other side goes against the wound and must not be allowed to touch anything else. The packet contains no pins, the dressing being secured by tying the ends of the bandage.

A head dressing requires more care than one on a limb. The bandages are kept from slipping by passing turns under the chin, behind the ears, over the crown, and by the use of safety pins (Plate 9.)

Treatment of Wounds.

Never touch a wound with anything unclean—dirty hands, bandages which are not sterile, etc., may cause blood poisoning.

Do not wash a wound unless you are sure that the water has been made sterile by boiling. The ordinary soldier should be instructed to use no water on a wound as he may believe the water to be sterile when it is not, or he may use a dirty wash rag. Make no attempt to clean the wound by wiping with a handkerchief or rag. You are more apt to introduce infection than to remove it.

Expose the wound by cutting or otherwise removing the clothing from it. The clothing contains many impurities.

If the wound is in the leg or arm raise the limb; that will help to stop the bleeding.

Apply a dressing from the first aid packet as already explained. If the application of dressings does not stop the bleeding, additional means must be used. These are discussed later.

Where the wound is in the arm or hand make a sling for the injured member. A bandage from the first aid packet, a handkerchief, part of a shirt, etc., may be used as a sling.

Stopping Bleeding (Hemorrhage).

Our bodies are kept in repair and waste material is disposed of by the blood. It goes to every part of the body, distributing the new building material that is needed, and gathering up the waste products, which it burns up in our lungs or otherwise.

The blood is distributed through pipes called arteries, and returns to the heart through other pipes called veins. These pipes of course are large close to the heart, and become quite small as they reach our extremities. The heart is nothing more than a pump which causes the blood to circulate. (Plate 10.)

If a large artery is cut a considerable amount of blood may escape; it comes out in jets or spurts as the heart beats, and is bright red.

Blood from a vein flows in a slow, steady stream, and the color is dark-red or purple. Arterial bleeding is the more dangerous on account of the great amount of blood which may escape in a short time.

We have only so much blood as we need. We cannot afford to lose any. If we lose very much it means death. Accordingly loss of blood is the thing most to be feared when a man is first wounded, and we must take the necessary measures to check or greatly reduce this loss. Let us see how this is done.

First of all, the arteries have the remarkable power of healing their own wounds. The blood on escaping into the air coagulates or hardens, and forms a clot, which tries to close the wound and prevent further loss. But sometimes nature requires artificial assistance in curing our wounds.

If we have a small leak in a garden hose it can be checked by putting a pad over the hole and wrapping it with a bandage. If a water pipe in the house bursts we shut off the water until the break can be repaired. We proceed in a very similar way to stop blood-leaks.

A compress placed on the wound and bound with a spiral bandage will check bleeding and give a chance for a blood clot to form. It will usually be sufficient in cases of slight or moderate wounds. Elevating the injured limb also helps to stop the flow of blood.

But if a large artery is cut it will be necessary to shut off the flow until a clot can form. Of course the closure must be made *between* the heart and the wound, as the blood in the arteries flows outward from the heart.

If the wound be in the knee, for example, find the large artery leading down into the leg, and close or partly close it by compression between the fingers and the bone in the leg. Feel down until you find the right place, and watch the effect on the flow of blood. This is what the doctors call "digital" (finger) compression. The proper places to apply this pressure for wounds in various parts of the body are shown in Plate 11. The compression may be kept up for 10 or 15 minutes. Then take a short rest or have another man help you.

These three remedial measures, that is the blood clot of nature, a dressing over the wound, and compression of the large artery, will usually be sufficient to prevent excessive loss of blood except when a large artery has been cut. If they are not sufficient we use a tourniquet.

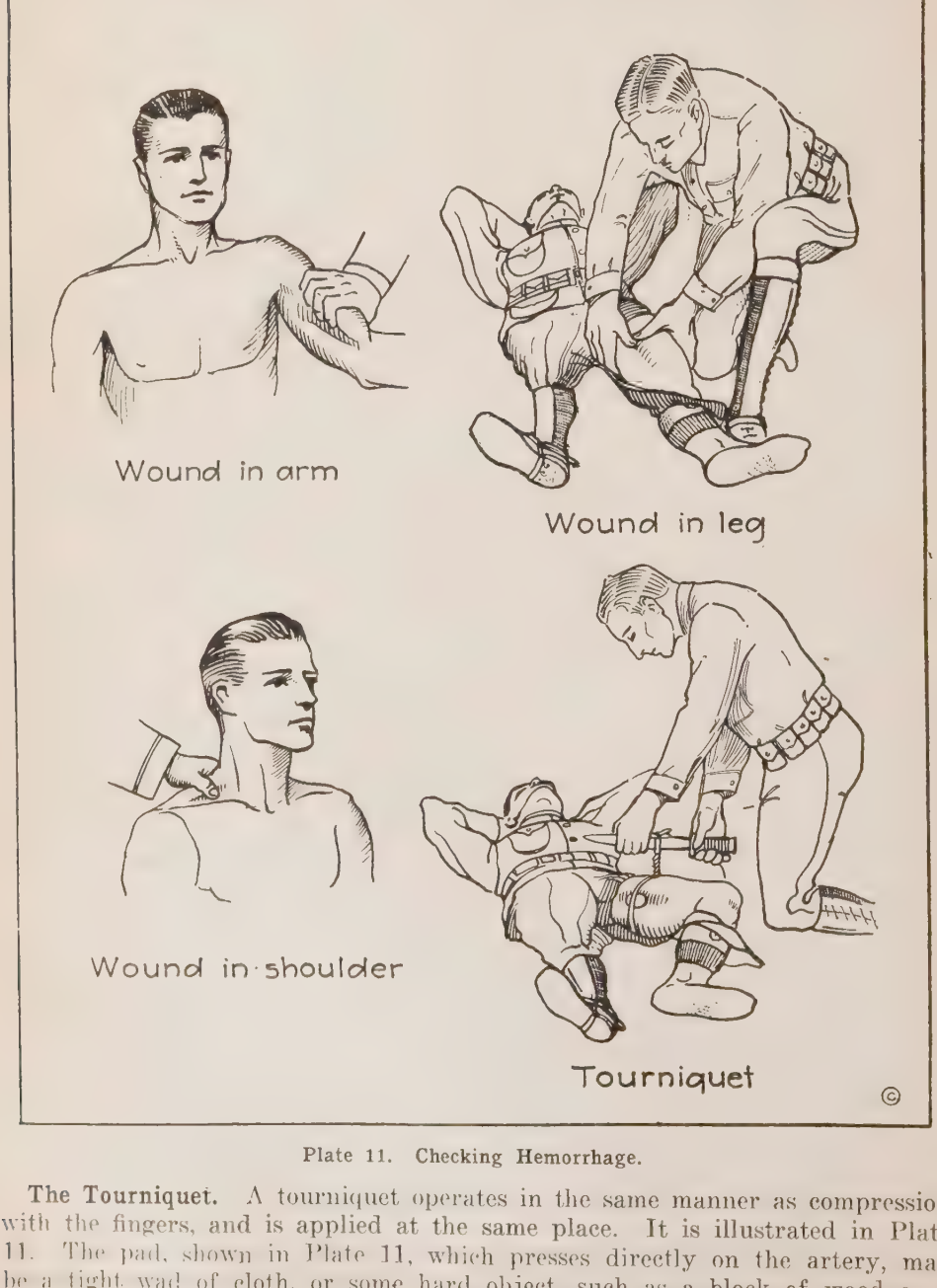


Plate 11. Checking Hemorrhage.

The Tourniquet. A tourniquet operates in the same manner as compression with the fingers, and is applied at the same place. It is illustrated in Plate 11. The pad, shown in Plate 11, which presses directly on the artery, may be a tight wad of cloth, or some hard object, such as a block of wood or a smooth stone wrapped in soft material. The bandage may be a handkerchief, necktie, etc. The tourniquet is tightened by twisting the bandage with a stick.

The tourniquet is a most useful device whose prompt use has saved countless lives. But in unskilled hands it is a dangerous device, and the following precautions should be carefully observed in using it.

Do not make the tourniquet any tighter than necessary to check the bleeding. At best it is painful.

Loosen the tourniquet not oftener than once every half hour nor less often than once an hour. Notice whether bleeding starts again. If it does, tighten up the tourniquet.

A tourniquet should never be hidden by clothing or a bandage so that it might be overlooked or forgotten.

Mark the patient's tag plainly: "Tourniquet." If he is conscious caution him to tell everybody that he has a tourniquet. He will usually not fail to do so.

If a tourniquet is left on for as much as 6 hours the patient will lose his limb.

Remove the tourniquet as soon as it becomes unnecessary to check hemorrhage.

A rubber band, if available, is a more effective, less painful and less dangerous form of tourniquet than a nonelastic bandage, tightened with a stick.

Splinting of Fractured Bones.

A broken bone is known as a fracture—a very common injury in modern war or industrial accidents. Naturally fractures occur most frequently in the limbs, especially the legs. There are two classes of fractured bones; the simple

Plate 12. Principle of the Splint.

fracture, in which the broken bone does not puncture the skin, and the compound fracture in which the skin is punctured. The following paragraphs apply especially to simple fractures.

The immediate danger in the case of a fracture is that the sharp, jagged edges of the broken bone, in moving about, will lacerate the arteries, veins and muscles, and a simple fracture possibly will become a compound fracture. Moreover the movement of broken ends causes intense pain. Accordingly a man with a broken bone should not be moved until the fracture has been so treated that the broken ends cannot move about. This is accomplished by what is known as splinting. A splint is simply a piece of stiff material such as a piece of board or the limb of a tree, to which a broken bone is bandaged, to prevent its movement. The principle is indicated in Plate 12. The splint is to be well padded where it touches the limb. Pads should not be placed on the fracture, but above and below.

In splinting, the limb should first be straightened out naturally, and the broken bone aligned by a gentle pull in the direction of the length of the limb (called "traction"). The splint is then placed, padded and bandaged at enough points to insure that there will be no movement of the broken bone. This means that the splint must be long enough and stiff enough. A very short and weak splint will generally be useless. The bandages must not be so tight as to prevent circulation of the blood.

Time should not be wasted trying to diagnose fractures in the field. If there is any doubt as to whether a bone is broken it should be splinted. The important thing is to prevent laceration and pain, which result from movements of

the broken parts. Accordingly, even if the limb is neither properly extended nor the broken parts in correct relative positions, much has been accomplished if relative movement of the broken ends is prevented.

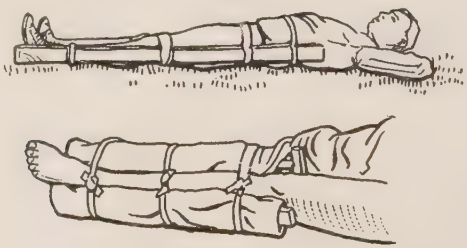
Improvised splints may be made of almost any material. The following instructions, which are illustrated in the accompanying figures (Plate 13), cover some of the more important cases of improvised splinting.

Fracture of the Upper Arm. Apply two splints; one in front, the other behind, if the lower part of the bone is broken; or to the inner and outer sides if the fracture is in the middle or upper part. Support by a sling.

Fracture of the Forearm. Place the forearm across the breast, thumb up and apply a splint to the outside extending to the wrist and to the inside extending to the ends of the fingers. Support by a sling.

1. Extemporized splint and sling support for fractured arm.

2. Extemporized splint supporting sling and fixation bandage for fractured forearm.



3. Body splint for fractured pelvis.
4. Blanket roll as splint for fractured leg.

Plate 13. Improvised Splints.

The shirt sleeve may be used as a sling for the arm. (Plate 14.) A very useful sling can be made from one of the bandages in the first aid packet. Another good type is the "triangular" sling. It is made by folding a large handkerchief, towel or similar article in the shape of a triangle.

Fracture of the Thigh. Apply a long splint, reaching from the armpit to beyond the foot on the outside, and a short splint on the inside.

Fracture of the Lower Leg. Apply two splints, one on the inside and one on the outside.

A blanket roll and two sticks will serve as a splint for a fractured thigh or leg when nothing else is available (Plate 13).

In the absence of any splinting material a broken arm may be bandaged to the body, or a broken leg to the sound leg.

Compound Fracture. A compound fracture is one in which one or both ends of the fractured bone have broken through the skin (Plate 16). This is a very serious condition. In treating this kind of a fracture do not attempt to put the

broken ends back together. This is likely to do further injury. Apply a first aid dressing and make the part immobile (fix it so that the ends of the bone can't move) as explained for simple fractures. Leave the rest to the doctor.

Shock.

Shock is a condition of extreme depression or lowering of vitality, usually the result of a severe wound. But in nervous or feeble persons it may result from a very slight injury. It is a condition not easily mistaken. Its principal symptoms are a temperature below normal, a weak and irregular pulse, pallor

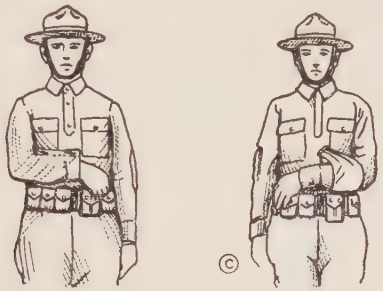


Plate 14. Shirt Sleeve or Flap as a Sling.

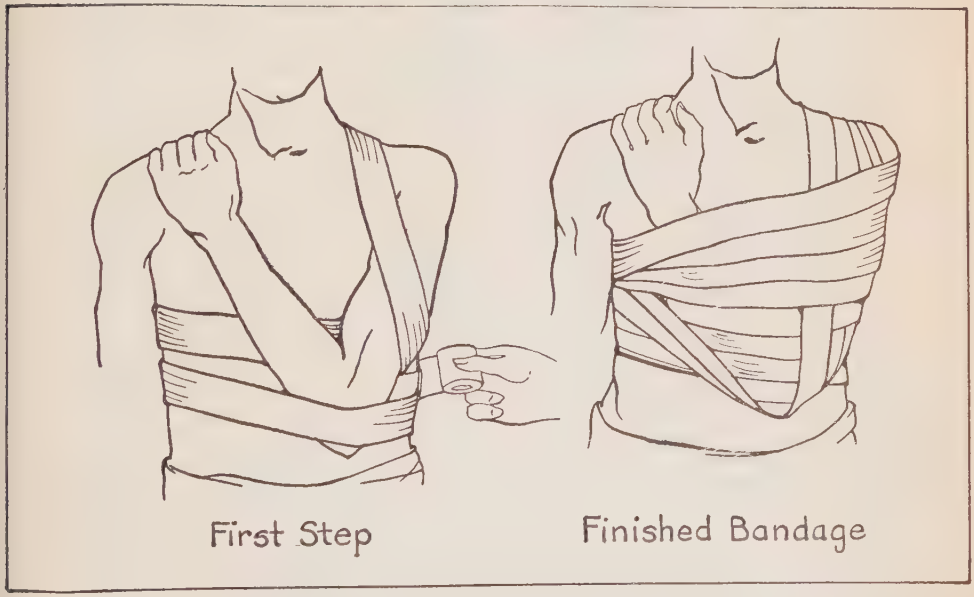


Plate 15. Bandage for Fracture of the Shoulder.

of the skin, a cold sweat especially on the forehead, nausea or vomiting, and a sighing and irregular breathing. The patient feels weak and may become unconscious. If conscious he wears a frightened and anxious expression.

Shock may follow very shortly after the wound, or it may be deferred for one or two hours. It is always aggravated by cold or wet, lack of food or water, bleeding, pain and lack of rest and sleep.

If the symptoms are mild the patient should simply be kept quiet and warm until he recovers. In severe cases, however, active measures are required or death will frequently follow. Any person who has received a severe injury

should be promptly given anti-shock treatment, even if the symptoms have not yet made their appearance. Shock is very apt to follow a severe wound, and it should be forestalled even if it does not immediately appear.

The following are the principal first aid measures to be taken to forestall or combat shock. Some of these have already been described:

Place the patient in a comfortable position, usually on his back, his limbs straightened and his head slightly raised.

Apply dressings to the wounds.

Check dangerous hemorrhage (bleeding).

Apply splints to fractured bones.

Loosen all tight clothing.

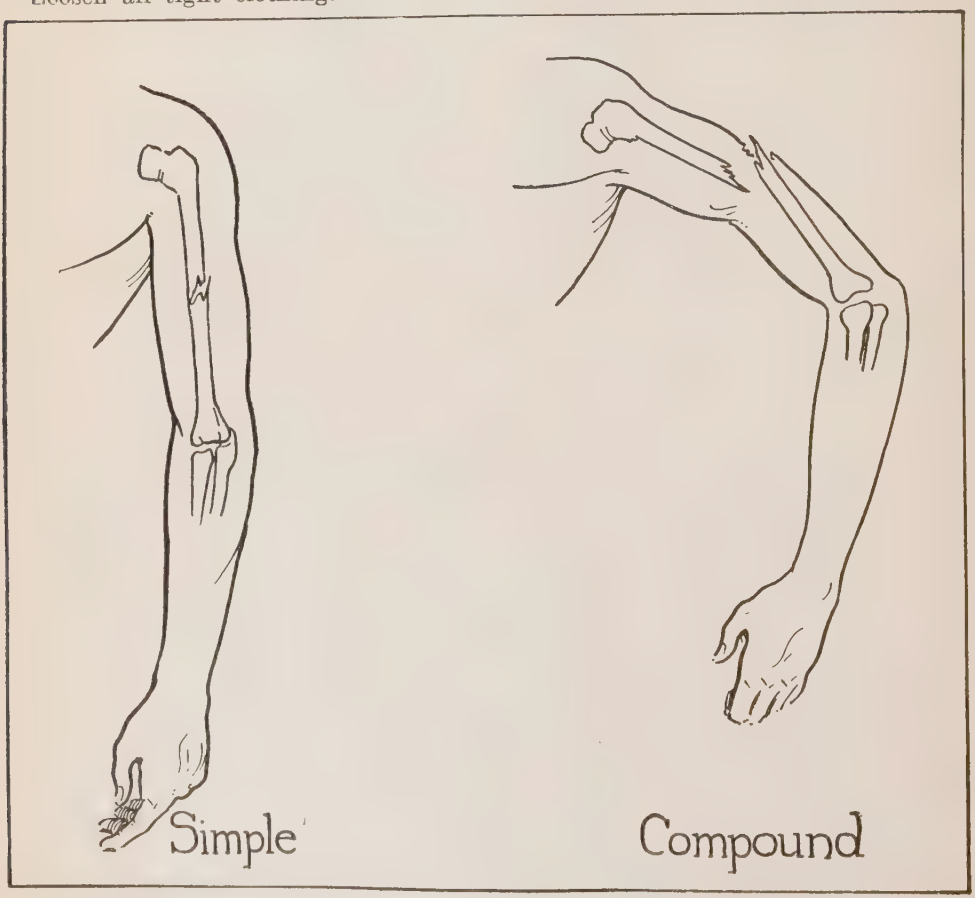


Plate 16. Fractures of the Humerus.

Keep the patient *dry* and *warm,* with blankets or clothing and hot water bottles or canteens filled with hot water. Be careful not to burn the skin; the patient will often be too depressed to notice whether he is being burned. If practicable move him to a warm room. If he is on a litter a stove may be placed under it. Unless the wound be in the chest or abdomen, hot nourishing drinks (cocoa or broth) may be given.

Keep the patient perfectly quiet. Shelter him, move him as little as possible, let him rest and sleep. Even when the ambulance is ready to take them to the rear it is better not to disturb patients in deep shock until they show signs of recovery. A ride in an ambulance is bad for them at this time.

These measures should be carried out as promptly as facilities permit.

Moving the Wounded.

Wounded men should be carried in the service litter whenever possible, and it is usually best to let them lie until a litter is available.

Evacuation by Litter. The wounded man should be laid on his back on the litter, his limbs naturally disposed. Tight clothing, especially collars and belts, should be loosened. Clothing may be cut, but should not be pulled so as to disturb the patient. Do not remove the clothing, as this would chill the patient at a time when he needs warmth. Stimulants (liquor) should never be given, especially to an unconscious man. One who has been wounded in the abdomen should be given no liquids or nourishment of any kind. Otherwise a drink, preferably a hot drink, may be given.

Bodily warmth is very necessary, and the patient should be blanketed or covered with an overcoat if possible. The patient should be properly prepared for his journey to the rear so that he need not again be disturbed until he reaches the aid station.

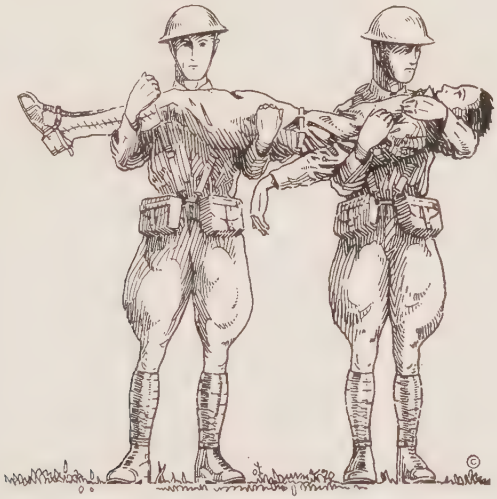


Plate 17. Carrying Seriously Wounded in Recumbent Position.

If there be no service litter at hand a litter may be improvised out of poles supporting a blanket, bags, shelter tents, bedtick, poncho, chicken wire covered with clothing, and many other similar articles. It is best to form a framework by lashing two short poles across the ends of the large ones to keep them apart. Poles should be at least 7 feet long. An ordinary camp cot makes a satisfactory litter. A patient having once been placed upon a litter should not thereafter be removed from it until he reaches the hospital.

Evacuation Without a Litter. It will occasionally be necessary to move wounded short distances without the aid of a litter.

A seriously wounded man, especially one with a broken leg, should be carried in a recumbent posture by two men, one supporting the upper part of the body and the other the legs. The patient being on his back, the bearers, both on the same side, slip their arms under his body and raise him gently. Plate 17. Plate 18 (5) indicates another method for two bearers to carry a patient. It is not suitable in cases of severe injuries to arms or legs.

Patients not seriously wounded may be assisted in walking or carried by one man. If the patient is unable to rise to an erect posture he should be gently

1. One bearer, supporting a patient.

2. Carrying patient in arms.

3. Fireman's carry.

4. carrying patient saddle-back

5. Two bearers, carrying patient by extremities.

Plate 18. Carrying Wounded.

assisted to his feet by two men. If the bearer has no assistant he proceeds as follows:

(Plate 18 (1).) Turn the patient on his face, step astride his body facing his head, place hands under his armpits and raise him to his knees. Clasp the hands over his abdomen and raise him to his feet. With the left hand seize the patient's left wrist and draw it around bearer's neck, holding it against the chest. Allow patient's left side to rest against bearer's body and support him with the right arm about the waist. This method cannot be used with an unconscious man.

(Plate 18 (2).) Proceed as in last case. Pass the left arm behind the patient's legs and raise him to the position shown in plate.

(Plate 18 (3).) Raise the patient to his feet as previously described. Seize his right wrist with the left hand and draw his arm across the (bearer's) left shoulder. Now stoop, pass the right arm behind the patient's right thigh and seize his right wrist with the right hand. Draw the patient's left arm around the bearer's back and steady it against the left side with the left hand.

Plate 19. Placing Patient on Horse and Carrying on Horseback.

Now rise slowly to the position shown in the figure. This is the best of the one-man "carries." It is known as the "Fireman's Carry."

(Plate 18 (4).) Raise the patient to an erect position, step in front, back to the patient, stoop and grasp his thighs, and rise to the position shown, bringing the patient well upon the back. This method evidently cannot be used unless the man is conscious.

(Plate 18 (5).) Shows the usual method of 2-man carry, and is self-explanatory.

To Place a Patient on Horseback. The help required to mount a disabled man will depend upon the site and nature of his injury; in many cases he is able to help himself materially. The horse, blindfolded if necessary, is to be held by an attendant.

(1) To load, the patient is placed on the horse from the near side. (Pl. 19.) The patient having been lifted, is carried to the horse, patient's body parallel to that of the horse and close to its side, his head toward the horse's tail. He is then carefully raised and carried over the horse until his seat reaches the saddle, when he is lifted into position. One man goes to the offside and puts the patient's right foot into the stirrup. One man puts the left foot in the stirrup. (Pl. 19.)

(2) To unload, the patient's feet are disengaged from the stirrups and his right leg swung over the pommel, one man going to the offside for the purpose

and then resuming his post at the left side. The patient is brought to a horizontal position, gently lifted over the saddle, and carried backward until free of the horse, when the squad halts and lowers patient.

(3) The patient once mounted should be made as safe and comfortable as possible. A comrade may be mounted behind him and guide the horse; otherwise a lean-back may be provided, made of a blanket roll, a pillow, or a bag filled with leaves or grass. If the patient be very weak, the lean-back may be made of a sapling, bent into an arch over the cantle of the saddle, its ends securely fastened, or some other framework, to which the patient is bound.

The Travois. The travois is a vehicle intended for transporting the sick or wounded when the use of wheeled vehicles or other means of transportation is impracticable. It consists of two long poles, one end of each pole being attached like shafts to the side of a horse, the free end dragging on the ground. Behind the horse, crossbars extend between these poles, holding them parallel and affording support for a patient.

A travois may be improvised by cutting poles about 16 feet long and 2 inches in diameter at the small end. These poles are laid parallel to each other, large ends to the front, and 2½ feet apart; the small ends about 3 feet apart, and one of them projecting about 8 or 10 inches beyond the other. The poles are connected by a crossbar about 6 feet from the front ends and another about 6 feet back of the first, each notched at its ends and securely lashed at the notches to the poles. Between the crosspieces the litter bed, 6 feet long, is filled in with canvas, blanket, etc., securely fastened to the poles and crossbars, or with rope, lariat, rawhide strips, etc., stretching obliquely from pole to pole in many turns, crossing each other to form the basis for a light mattress or an improvised bed; or a litter may be made fast between the poles to answer the same purpose. The front ends of the poles are then securely fastened to the saddle of the animal. A breast strap and traces should, if possible, be improvised and fitted to the horse. On the march the bearers should be ready to lift the rear end of the travois when passing over obstacles, crossing streams, or going uphill.

Typical Experience of a Wounded Man.

A conception of the processes of battlefield aid to the wounded may be gained by following the progress of a wounded man to the rear.

Private Jones, while acting as scout in front of an assault (1st line) platoon, has his leg broken by a bullet or shell splinter. He rolls upon his back, where he can look forward, and lies perfectly still for a few minutes. No further fire being directed at him, although his position is very exposed, he presently crawls behind a small hummock nearby, where he is concealed from view.

Here Private Jones attempts to apply a dressing from his first-aid packet, while keeping under cover. This he is unable to do. The platoon comes forward, and a comrade assists him in applying the dressing and, if necessary, applies a tourniquet. Private Jones is unable to walk unassisted and his comrade is not permitted to leave the attacking line to help him to the rear.

A little later, when Private Jones' platoon has moved forward, an enlisted man of the medical corps who is following up the advance as closely as possible, finds him. He examines the wound, loosens the tourniquet and gives Jones a stimulant. A tag, indicating the nature of his wound and the treatment given him is attached. Shells are still falling. The medical corps man tells Jones to lie still, that he will be picked up soon.

In about 15 minutes the shelling falls off greatly. Two men of the medical corps arrive with a hand litter. They examine Private Jones, and finding he has a broken leg they apply an improvised splint. They then place him on the litter and start to the rear. Progress is very slow, as a sheltered route must be followed to reach the battalion aid station, about 500 yards to the rear.

At the aid station Private Jones remains upon his litter. He is given an injection of morphia to allay his pain, and anti-tetanus serum. The improvised splint is replaced by a standard splint, and the dressing readjusted if necessary. He is given a hot drink and blankets are placed over him. He is placed under shelter and allowed to rest in quiet.

Private Jones, on a litter, or perhaps in a light ambulance, now proceeds a mile more or less to the rear, arriving at the collecting station in 15 or 20 minutes. Here he is examined to see how well he is enduring the trip. His litter is then placed on a standard ambulance and he continues some miles to the rear (probably 4 or 5 miles), arriving at the hospital station. It has been about 3 hours since he received his injury. He is now operated on and remains at the hospital station long enough (from a few hours to several days) to be put in condition for his journey to one of the large hospitals of the rear.

First Aid in Various Cases of Injury.

The following cases of injury, other than wounds received in battle, occur even more frequently in civil life than in the army, and accordingly every person should known the signs or symptoms and the simple measures of first

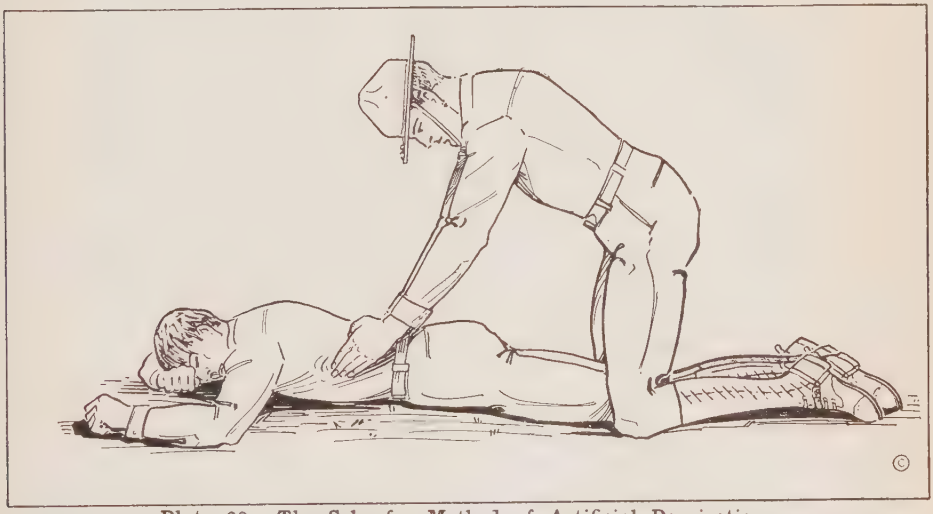


Plate 20. The Schaefer Method of Artificial Respiration.

aid to be used in each case. This knowledge may enable you to save a valuable life, or at least to save much suffering.

In all serious cases a competent doctor should be called promptly. The following measures are those which should be taken while awaiting the doctor's arrival.

Everybody wishes to aid those who have been injured, yet few know what to do. The measures to be taken are all very simple and usually effective. It is your duty to know them. Know what you are doing, for if you do the wrong thing you will harm the injured person instead of helping him. If you don't know what to do it is best to do nothing. But there is no excuse for this.

Drowning. A person who has been drowned stops breathing, and to resuscitate him it is necessary to start his breathing by artificial means. (Plate 20.)

It should never be assumed that the man is *dead* unless he is known to have been under water for a very long time. Start artificial respiration at once, on the ground or in a boat—do not wait to remove clothing or carry the patient to a more convenient spot.

As soon as the patient is out of the water turn him face downward, extend his left arm forward, and bend his right arm, resting the right side of his face on his right hand, thus keeping his mouth clear of the ground. Run your fingers into his mouth to remove any foreign matter that may have lodged there, and to straighten the tongue in case it has fallen back into his throat, obstructing the air passage. Straddle him in a kneeling posture (Plate 20), or if he be a very large man straddle his left leg. Place the hands on the turn of the ribs and feel downwards until the lower or floating ribs are located by the little fingers of the operator. If necessary raise the patient's shirt, exposing his back, and feel around to the front for the ribs.

Place the hands, thumb and fingers of each hand extended and joined, so that the little fingers curl over the ends of the lowest ribs on each side. The lower margin of the hand must rest on the lowest rib and not on the soft portion of the abdomen below the ribs. The nearer to the ends of the ribs the heels of the hands can be placed without sliding off the better the position. Thus the hands are far removed from the spine, and the ends of the fingers out of sight. Now bring a heavy pressure to bear by throwing your own weight forward on your arms, rising on your toes if you are of light weight and the patient is heavy. The movement of the hands should be obliquely forward against the diaphragm of the patient, and not vertically down on his spine. Thus the shoulders of the operator should be in rear of his hands. The arms will thus be inclined slightly forward, arms straight (elbows not crooked). The pressure comes from the weight of the operator's body. It is applied to the patient through your arms. This pressure should be applied with increasing intensity for about 3 seconds, and then suddenly released, keeping the hands in the proper place unless you have enough experience to enable you to put them back quickly. After 2 seconds of release apply the pressure again. The whole procedure thus requires 5 seconds, which is about the normal rate of breathing. If you have difficulty in estimating the time, count the seconds, adding the word "and" after each count. Thus: "One and two and three. One and two." If this is repeated slowly the intervals will be correct.

Continue the operation at a uniform rate until the patient begins to breathe himself, and then watch carefully to see that he does not stop again. Continue to assist him and do not permit him to change his position until his breathing is full and regular. Cases of recovery after two hours of this treatment are on record. So continue for that period if necessary. Do not give any stimulants or liquids until the patient is conscious. Then give stimulants and keep him warm.

This method of artificial respiration may also be used in cases of cessation of breathing following an electric shock or gas asphyxiation.

A feather or mirror held in front of the patient's nose will indicate whether the artificial respiration is actually being produced, and also will show when he begins to breathe naturally.

Precautions. Most drownings occur when people go swimming so that the following simple ten commandments for such people are not out of place:

Don't go in swimming alone unless you are an expert.

Don't swim immediately after eating; wait at least 2 hours.

Don't swim if overheated.

Don't swim if you have heart trouble.

Don't continue swimming when exhausted.

Don't wade into water with your arms above your head. You will not be in readiness to stroke should you step into a hole.

Don't struggle if caught in a swift current or undertow. The force of the current will bring you to the surface.

Don't fight or struggle if you swallow water; clear your windpipe of water first.

Don't cry for help in fun; you may need help some time and not get it.

Don't dive without knowing how deep the water is.

Fainting or Loss of Consciousness. Except as a symptom of severe shock this condition is seldom dangerous. The patient continues to breathe.

Lay the patient on his back, head on a level with the body, arms and legs straight. Loosen tight clothes, especially around the neck. Give him plenty of air. Keep him quiet.

Chafe the patient's arms and legs, rubbing from the hands or feet towards the body, and slap the chest. Sprinkle cold water on the face and chest. Give stimulants carefully and slowly (hot coffee, etc.).

Sunstroke and Heat Exhaustion. These result when persons are exposed to high temperature, either of the sun or from other cause. The patient may or may not be unconscious. His face is flushed, his skin hot and dry, his breathing labored and pulse rapid and strong.

Move the patient to a cool, shady spot, loosen the clothing, and cool the head and body by applying cold towels or ice bags. Do not give any stimulants.

In rare cases sunstroke may go into collapse, in which the skin becomes cold and the pulse weak. In such a case alcoholic stimulants should be given and the body warmed by blanketing, hot applications, and chafing the limbs.

A sunstroke is often preceded by headache, dizziness, nausea and a feeling of being oppressed by heat. If at this time the patient will get into the shade, take off his coat and lie quietly, a sunstroke may often be avoided.

Suffocation (Asphyxiation) From Gas. The patient requires fresh air, warmth, quiet and rest. If he is unconscious treat as in cases of shock. If he has ceased breathing apply artificial respiration as in drowning.

In case of gas poisoning from the gases used in war, get the patient out of the gassed area into open high ground.

Remove his equipment, including his gas mask, as soon as out of the gassed area. If necessary remove gas-impregnated clothing

Treat the eyes, skin, mouth, throat and stomach (inside) with a mild alkaline solution (soda, or lime water).

Keep the patient *quiet* and *warm.*

Keep gas patients away from those who are not gassed. Have their clothing and equipment aired and boiled or steamed.

In handling gassed cases it is well to keep on your own mask and to wear gloves if you have them. If not wash your hands or rub dry lime on them.

When a man has been "gassed" exertion is very dangerous, even if he feels fully equal to it.

Choking. A person who is being suffocated by a substance lodged in his windpipe (usually food), gasps for air and clutches at his throat. He may cough violently, his face often turns blue, his eyes start out of their sockets. This condition may result fatally if the foreign body is large enough to cut off entirely the supply of air, and is not promptly removed.

Have some one send promptly for a physician, and tell him the circumstances so that he may bring the proper instruments.

Cause the patient to cough and slap him violently on the back between the shoulder blades. If this is not sufficient hold him by the feet or legs, head down, and again slap him on the back.

Burns or Scalds. Remove the clothing very gently from the burned portion. Do not open blisters. Cover the burned area with a lotion of equal parts of linseed, cottonseed or olive oil and lime water, or oil alone if no lime water is available.

If a person's clothing is on fire, choke the flames by wrapping him in a blanket, comforter, table cloth or the like, or use your own coat. Do not let him run; throw him on the floor or ground and smother the flames.

If you are caught in or have to enter a house which is full of smoke, cover your nose and mouth with a wet handkerchief. Also remember that there is no smoke within 6 inches of the floor, so when you can no longer breathe in an upright position get down and crawl with your mouth close to the floor.

Burned Eyes. Eyes burned with acid, lime, poison gas, phosphorus, etc., must be treated promptly or the sight may be lost. Wash the eyes promptly with milk or water sweetened with sugar. Weak alkaline solutions, such as lime water, are also useful in case of acid burning, and weak acid solutions, such as vinegar, in case of alkaline burning. After washing pour into the eyes a spoonful of olive oil or other salad or cooking oil, to soothe them.

Electric Shocks and Burns. These result from contact with wires carrying a heavy (high tension) current.

The most important thing to do is to remove the person from contact with the wire or electrical machinery. This is always a dangerous procedure and should never be attempted unless you have some means of insulating yourself; otherwise you may receive fully as severe a shock as the person whom you are attempting to rescue. The hands should be thoroughly protected by some insulating material or non-conductor of electricity, as rubber gloves, rubber blanket, mackintosh coat, several thicknesses of silk or dry clothing. The rescuing party should be further insulated by standing on a rubber mat or dry boards. It may be easier to push the wires aside, using a long piece of dry wood.

Electric shock exhibits symptoms similar to those of wound shock and is treated in the same way. If breathing has stopped apply artificial respiration as in drowning. Electric burns are treated in the same manner as other burns.

Freezing or Frost-Bite. The part frozen, which looks white or bluish-white, and is cold, should be very slowly raised in temperature by careful rubbing or friction in a cool place and never near a fire. Stimulants are to be given cautiously, when the patient can swallow, and followed by small amounts of warm liquid nourishment. The object is to restore the circulation of the blood and the natural warmth gradually and not violently. Care and patience are necessary to do this.

Snake-Bite. Snake venom is very rapidly absorbed into the system. If the bite be on a limb, place a tourniquet close to the wound, on the side towards the heart. With a knife make two cross cuts through the wound so that it will bleed freely. Suck the wound strongly and spit out the blood and poison. If there are cracks or sores on your lips or sores or cuts in your mouth some of the poison may enter your own system.

Bite of a Mad Dog. The treatment in this case is the same as for snake-bite, except that as the poison is not rapidly absorbed into the blood no tourniquet is needed.

Bites of Scorpions, Spiders, Wasps, etc. These are treated by local applications of a solution of baking soda and ammonia with stimulants if necessary. They are often painful, but not dangerous.

Poisoning. This results from swallowing mineral or vegetable poisons or eating spoiled food (food poisoning).

The remedy is an antidote for the poison, an emetic to produce vomiting, or a stomach pump or syphon (except in the case of strong acid or alkali), and a cathartic.

There is an antidote for each poison and if there be a drug store near the druggist will know and can furnish it promptly. In general alkalines are antidotes for acid poisoning and the converse.

If you do not know or cannot promptly obtain the antidote an emetic should be used while awaiting the arrival of a physician. There are certain drugs which are powerful emetics, and it is well to keep them on hand. Mustard or salt in warm water have an emetic action. Vomiting is also induced by sticking the fingers down the throat. As some of the poison may have entered the bowels it is well to follow the emetic with a cathartic, Epsom or Rochelle salts, castor oil, etc. The cathartic should not be given until vomiting has ceased.

An emetic is advisable in any case of poisoning except where the poison has evidently burned the lips and mouth (acid). In this case give the patient a large dose of olive, cottonseed or castor oil (internally), followed by the proper antidote.

When the poison has been evacuated the patient should be kept warm and given stimulants and external rubbing.

Epileptic Fits. These are due to disease of the brain and come without warning. The patient at once becomes unconscious and goes into violent convulsions for 5 to 10 minutes. Nothing can be done to stop the convulsion. Place the patient on a mattress or some soft surface, and prevent his injuring his head or limbs by striking them against any hard object. If possible place a handkerchief between his teeth to prevent him from biting his tongue. Do not attempt to hold him down. Following the convulsion the patient usually sleeps several hours.

Apoplexy. This is unconsciousness resulting from the bursting of a blood vessel in the brain, sometimes accompanied by convulsions. It seldom occurs in persons under 50 years of age.

The treatment is the same as in cases of shock, but no stimulants should be given. A physician should be called at once.

Concussion of the Brain. This results from a severe blow on the head, not sufficient to fracture the skull. The patient is pale and weak, always dazed and sometimes unconscious.

The treatment is similar to that for shock. The body and limbs should be kept warm, and the head cool, by cold towels or ice bag. No stimulants should be used.

The patient should be examined by a doctor to make certain that his skull is not fractured.

Compression of the Brain. This is unconsciousness resulting from pressure on the brain by a piece of broken bone or by a ruptured blood vessel, either resulting from a heavy blow on the head.

The condition is similar to apoplexy and is often fatal. Little can be done before the arrival of the doctor. Lay the patient on his back with head slightly raised, in a dark quiet room. Loosen clothing and keep the head cool. Give no stimulants.

Cuts. A cut is a small wound. Allow it to bleed freely for a time, wash with a good antiseptic solution and brush with tincture of iodine. If the cut is a deep or large one place a sterile dressing on it and soak the compress with an antiseptic; bichloride of mercury is good. Very bad cuts should be dressed by a doctor.

Bruises, Sprains. If the bruise is serious apply hot towels to the injured portion. Paint with tincture of iodine and bandage if necessary to protect the surface.

In case of sprain place the sprained limb in water as hot as the patient can stand and increase the temperature gradually, to the limit of his endurance.

Rub with liniment. Repeat the treatment several times daily if necessary. A sprained limb should not be used, but allowed to rest until fully recovered.

Dislocations. A dislocation is a bone out of place at the joint where two bones come together. The patient is unable to move his limb (jaw, etc.) in the usual manner, and the joint appears deformed as compared with the corresponding joint on the other side of the body.

Pull the limb strongly and steadily away from the body. If this does not correct the trouble it is probably a fracture. Dislocation is often accompanied by sprain.

Foreign Bodies in Eye, Ear, Nose or Throat. If a foreign body (insect, cinder, etc.) lodges in the eye, close the eye and allow tears to accumulate. Then open the eye and the tears will often wash the foreign body into the corner of the eye where it may be removed. Other expedients are: Take the upper lid by the lashes, put it well down over the lower lid, allowing the lashes of the lower lid to sweep the inside of the upper lid; close the eye and press across the upper

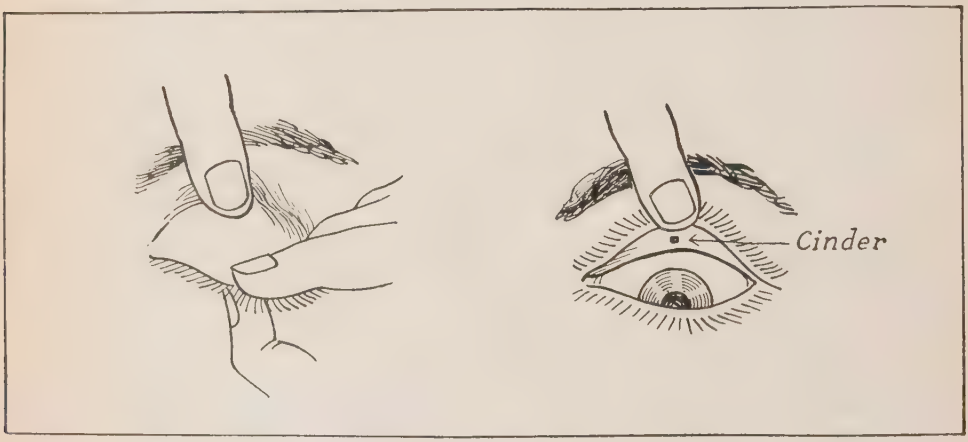


Plate 21. Removal of Foreign Body From Eye.

lid with the finger, from the outer to the inner corner of the eye; flush the eye with cold water. If these methods fail, take the upper lid by the lashes, lift and turn it back, or place a match or toothpick over middle of the lid and turn it back over the match, cause the patient to roll his eye down, look for the particle and remove it with the corner of a soft handkerchief. A particle under the lower lid is usually easily seen by pulling the lid down and causing the patient to roll the eye upward (Plate 21).

If the eye is splashed with acid flush it with an alkaline solution, such as soda or lime. If splashed with alkali, flush with an acid solution, such as dilute vinegar or lemon juice.

Foreign bodies in the ear are usually insects, cinders or vegetable matter. If a live insect, hold a light near the ear, this will often cause it to come out. If not, lay the head on the opposite side and pour a few drops of light oil into the ear. This may kill the insect and float it out. An insect or cinder may be flushed out with water. Never use any liquid to flush out vegetable matter, as this may cause it to swell to a larger size. Lay the head with the affected ear down, on a table, and knock the head against the table, or strike the opposite side with the fist to jar the particle out.

Foreign bodies are usually easily expelled from the nose by closing the mouth and the other nostril and violently expelling air through the affected nostril. If the object is not vegetable matter the free nostril may be syringed with warm water, which will often wash it out.

Foreign bodies in the throat have been discussed under **choking.**

RESPONSIBILITIES OF COMMANDING OFFICERS SUMMARIZED.

We may here sum up briefly the more important sanitary measures, for the enforcement of which all officers commanding troops are directly responsible.

1. Instruct the men in the rules of personal hygiene, and watch their habits. Explain to them the reasons for all sanitary precautions and enlist their cooperation.
2. Provide for ample air space and thorough ventilation in quarters.
3. Provide for the effective disposal of wastes of all kinds, avoid soil pollution, and keep the camp scrupulously clean.
4. Provide for proper drainage and abatement of dust.
5. Keep animals away from part of camp occupied by the troops.
6. Provide facilities for bathing, delousing, washing, drying, and disinfestation of clothing, and enforce their use.
7. Provide plenty of warm, dry clothing and bedding. Keep clothing clean and bedding clean and aired.
8. Pay special attention to the mess, enforcing all the measures herein discussed.
9. Provide potable water for drinking and cooking.
10. Discourage the consumption of food or drink from questionable outside sources.
11. See that the men have 8 hours sleep per day, under favorable conditions.
12. See that all the prophylactic treatments required are administered to all men.
13. Make occasional physical inspections of the men, and encourage all sick men to present themselves to the doctor.
14. Suppress all kinds of vermin and insects.
15. Isolate all men suffering from or suspected of contagious diseases, or who may have been exposed. Inspect all new arrivals for communicable disease, and isolate them for a time from the older members of the command.
16. Watch the sick list.
17. See that all members of the command are properly instructed in "First Aid."
18. Sanitary precautions may nearly all be summed up in a few words: Fresh air, good food and water, proper clothing and shelter, good habits and care of the person, isolation of communicable diseases, prophylaxis, and *cleanliness in all things.*

Questions.

1. Define first aid. Why is this subject important?
2. Give some general instructions to be followed in rendering first aid.
3. Describe the contents of the first aid packet. Explain how a first aid dressing is applied to a wound in the leg.
4. Describe the treatment of a bullet wound in the arm.
5. What is hemorrhage? Why is hemorrhage dangerous?
6. Explain how the flow of blood from a wound may be stopped. If a tourniquet is left on a limb for 6 hours without being loosened, what will happen to the limb?
7. What is the basic principle in the first aid treatment of a broken bone?
8. What first aid treatment should be given in case of a compound fracture?
9. What is shock, and what is the treatment for shock?
10. Why is it necessary that great care be exercised in moving the wounded?
11. Describe how to start a man breathing by artificial means.
12. What first aid measures are effective in a case of fainting?
13. What treatment is given a man who has been gassed?

14. Describe the first aid measures to be taken in the following cases: *a.* Choking. *b.* Burns. *c.* Electric shock. *d.* Frost-bite. *e.* Snake-bite. *f.* Poisoning. *g.* Cuts.

15. How may foreign bodies be dislodged? (a) From the eye; (b) from the ear; (c) from the nose.

16. Name the most important sanitary measures for which the commanding officer of troops is directly responsible.

Practical Exercises.

Exercise 1. Exhibit the contents of a first aid packet.

Exercise 2. Demonstrate methods of applying first aid dressings to wounds.

Exercise 3. Demonstrate methods of stopping bleeding, including the use of the tourniquet.

Exercise 4. Demonstrate the splinting of fractured bones.

Exercise 5. Demonstrate the treatment of a compound fracture.

Exercise 6. Demonstrate methods of transporting the wounded.

Exercise 7. Demonstrate the method of causing artificial respiration. Have as many of the class as possible practice this method.

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PHYSICAL TRAINING

CHAPTER I.

GENERAL INSTRUCTIONS.

Necessity for Physical Training. Physical training, development, and conditioning of those entering the military service must be one of the first and most serious concerns of those intrusted with the training of an army.

The success and general efficiency of every military establishment are in a very large degree dependent upon the physical fitness, endurance, and condition of the individual units of which it is composed.

From a military point of view the individual can be considered only with reference to the requirements of the service, and these requirements should determine the nature and extent of his training. In other words, a recruit cannot be considered as dependable and effective unless he measures up to the standard of the military physical requirements.

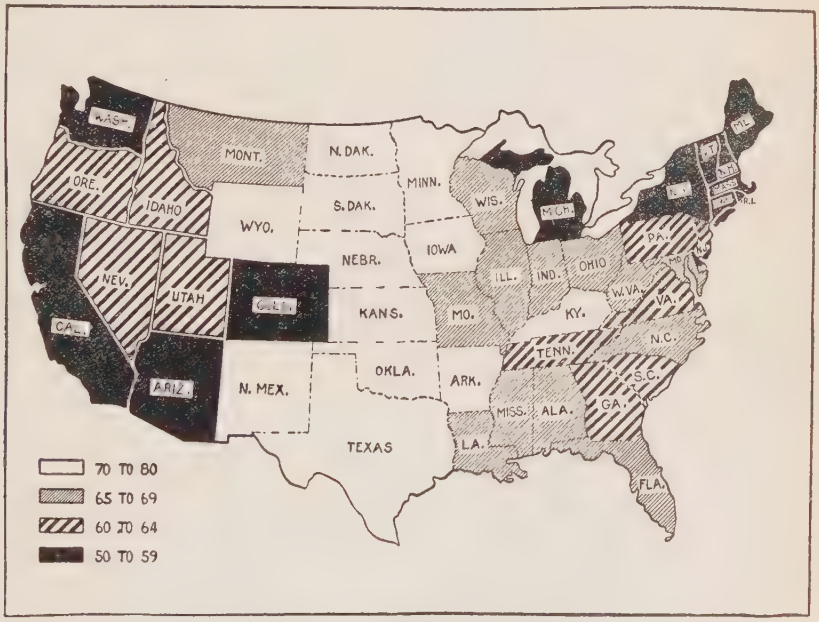

Plate 1. Per Cent of Men of Military Age Found Physically Fit for Military Service During the World War.

Object of Military Physical Training. The object of military physical training is to develop each soldier so that he can effectively perform his duties. Rational methods should seek to develop the resistive and recuperative powers of the vital organs to such a degree that each is not only sufficient unto itself but also possesses surplus energy.

Health, Strength, and Vigor. Although the development of health, strength and organic vigor are the primary objects and determining factors of every course of physical training, they become, from a military point of view, but a means to an end. In other words, health, strength, and vigor will avail a soldier but little if he does not employ them as aids to the accomplishment of the various

and manifold requirements his profession imposes upon him. He can, however, succeed in doing this only after he has learned to conserve these physical attributes carefully. Then will he find them a means that he may employ to the best advantages for himself and for his organization. Such efficiency will develop self-reliance, confidence, self-control, the courage to dare, which in turn spell discipline.

Discipline. Experience at the United States Military Academy gained in training men from every walk of life and from every part of the country has proved conclusively that the disciplinary value of physical training is at least the equal of its physiological value.

Summary of Objects. Summarized briefly, the objects of this training are:

The development of general health and vigor and their conservation.

The development of muscular strength, coordination, and endurance, and their application to the prescribed professional requirements.

The development of discipline and teamwork in the individual and in the organization.

The development of self-reliance, confidence, courage, self-control, alertness, and presence of mind.

The development of smartness, precision, enthusiasm, personal and organizational pride and morale.

Scope of the Course.

Scope of Military Physical Training. The scope of military physical training in the field is necessarily limited to the activities that can be carried on without equipment or with improvised equipment.

In time of peace, boxing, wrestling, applied gymnastics, exercises with the various hand appliances, such as clubs and dumb-bells, may be added. Where the facilities exist, swimming instruction should be included. Swimming is of importance to every one connected with the service and all officers and enlisted men should endeavor to become proficient in it. Aside from its usefulness, swimming is the best single means to all-around physical development.

The instruction prescribed in this course embraces the following activities, which in number and variety are ample for either war or peace-time training:

Setting-up exercises. Setting-up exercises are the foundation upon which the entire course of physical training in the service is based. Their importance hardly can be overestimated, because by their means it is possible to effect an all-around development difficult of attainment by any other method. They should, therefore, form an important part of every course in physical training. In these regulations only those exercises have been included whose value from a physiological and military point of view is unquestioned.

Marching in quick and double time and running. Marching in quick time and exercises while marching call into action the various parts of the body and tend to develop coordination, upon which to a great extent poise, posture, carriage, and rhythm are dependent. Marching in double time is a heart and lung developing exercise of moderate severity. Running, on the other hand, especially when continued for long periods, or at a high rate of speed, or when taken in conjunction with leg exercises, affects those organs in a very marked degree. Both *double timing* and *running* are invaluable in the development of endurance and organic vigor.

Corrective exercises. Minor physical defects can readily be overcome by ordinary physical drills, if carefully conducted. Defects of long standing, resulting from faulty posture, previous illness or other causes, may require special exercises. Corrective exercises have been designed to overcome the most common of such defects.

Methods.

Application of Instruction Material. In the application of the various forms of activities it is necessary that well-defined methods be pursued in order that the objects of physical training may be attained in a thorough, systematic, and uniform manner. The following factors must be considered:

Object.
Scope.
Physical condition and aptitude of the men to be instructed.
Time allotted to this instruction and its division.
Instruction material and its application.

Condition and Aptitude of the Men. The condition and aptitude of the men must always be the determining factors in planning the nature and extent of what is required of them. This is frequently overlooked, particularly by over-zealous instructors, who by confusing quantity with quality often defeat the very purpose of physical training.

In general, it is advisable to divide the men into two distinct classes—the recruit class and the trained-soldier class. The work in each of these classes should be well within the capabilities of the average man composing them; it should be arranged progressively, and no men should be promoted into the trained-soldier class until they have qualified in the requirements of the recruit class.

Allotment of Time. The time allotted to instruction should, for recruits, consist of two hourly periods a day, as follows:

Morning period. The morning period should begin not earlier than half an hour after breakfast. Men should not be required to indulge in strenuous exercises before breakfast. It should embrace a schedule of activities of which the following is typical:

Marching and double timing, 5 minutes.
Setting-up exercises, 20 minutes.
Gymnastics, jumping or climbing, 20 minutes.
Recreational games or personal contests, 15 minutes.

Afternoon period. The afternoon period should cover a schedule such as the following:

Rifle exercises, alternating daily with boxing and wrestling, 20 minutes.
Mass athletics or group games, 40 minutes.

Grouping of Exercises. Every exercise has a function peculiarly its own, and it is the sum of these exercises properly grouped and performed, each lesson being complete in itself with respect to the results it is intended to attain, that constitutes the successful method.

Every lesson should begin with the least strenuous activity and gradually work up to those more strenuous. Then the operation should be reversed by gradually working back again to the less fatiguing activities.

Number to be Instructed. As a rule instruction should not be imparted to a unit greater than a platoon. For disciplinary purposes, however, in order to weld the command into a compact, alert, and quick unit and develop a spirit of enthusiasm, whole companies, or even battalions and regiments, should occasionally be drilled as a unit.

Drills to be Attractive. Physical-training drills should be made as attractive as possible, so that they will react as an exhilarant and awaken the enthusiasm of the men. This will not result, however, if the mind is not employed as well as the body. The drills and exercises should be so conducted as to appeal to the mental as well as the physical side of the men. By appealing to their intelligence, a cheerful, intelligent, and enthusiastic responsiveness always results. An officer who does not grasp this fact will find himself unable to

arouse the men to the point where they will voluntarily extend themselves to the limit of their capabilities.

The time available should be divided into short periods of various types of drills, exercises, or games in preference to a long period of a single type, which is liable to result in exhaustion, monotony, lack of interest, and no benefit. Physical training should be carried on out of doors when weather permits.

Explanation and Conduct of Movements. All movements should first be carefully explained, laying stress upon their principal object and then should be illustrated by the instructor.

Accurate and precise performance of every movement should be insisted upon. By doing so other essential soldierly qualities, such as activity, agility, gracefulness, and accuracy, will be developed in addition to strength and endurance.

When one part of the body is being employed care should be exercised not to derange the other parts, which should remain as immobile as the conformation of the body will allow. In order to develop the proper degree of coordination the men should be taught to exercise any one part of the body independently of the others.

Relation of Respiration to Physical Effort. A fundamental condition of exercise is unimpeded respiration. Proper breathing should always be insisted upon; holding the breath and breathing only when it can no longer be held is injurious. Each exercise should be accompanied by an unimpeded and, if possible, by an uninterrupted act of respiration, the inspiration and expiration depending to a great extent upon the nature of the exercise. Inhalation should always accompany that part of an exercise which tends to elevate and distend the thorax; as, raising arms over head laterally; while that part of an exercise which exerts a pressure against the walls of the chest should be accompanied by exhalation, as when lowering arms laterally from shoulders or overhead.

If, after exercising, the breathing becomes labored and distressed, it is an unmistakable sign that the work has been excessive. Such excess is not infrequently the cause of serious injury to the heart and lungs, or both. In cases where exercise produces palpitation, labored respiration, etc., it is advisable to recommend absolute rest.

Uniform to be Worn. For the ordinary physical drills, loosely laced breeches, without leggings, regulation cotton undershirts, and the regulation gymnasium shoes should be prescribed. Olive-drab shirts may be added to the undershirt during the colder months. Hats, caps, or blouses will not be worn; if a headdress is worn it should be removed.

Muscular action produces an unusual amount of bodily heat; this should be lost gradually, otherwise the body will be chilled. Hence, after exercise, never remove clothing to cool off, but, on the contrary, wear some wrap in addition. In like manner, be well wrapped when leaving the drill grounds.

Bathing. Cold baths should be discouraged, especially when the body is heated, as is the case after exercising violently. In individual instances such baths may apparently be beneficial, or at least not injurious; in a majority of cases, however, they cannot be used with impunity. Tepid or warm baths followed by a cool shower are recommended. When impossible to bathe, the clothes worn while exercising should be stripped off, the body sponged with tepid water, and then rubbed thoroughly with coarse towels. After a bath the body should be sufficiently clothed in clean garments.

Eating and Drinking. The men should be instructed never to exercise immediately before or immediately after a meal, as digestion is of more importance at such times than extraneous exercise. At least one-half hour should intervene between a meal and any physical or athletic instruction, whether given before or after the meal.

Drinking water, particularly cold water, during or immediately after exercising should be discouraged; the body should first be allowed to recover its normal condition before quenching the thirst with draughts of cold water. If necessary to do so while exercising, cool, not cold, water may be used in small quantities, but exercise must continue, especially if the body is in a state of perspiration.

Instructors.

Officer in Charge of Instruction. For disciplinary purposes, and also to give physical training the importance it merits, the instruction should be placed in charge of commissioned officers. Instruction as important as this is worthy of the best efforts and should never be intrusted to an officer who is lacking in enthusiasm or who is not properly qualified to conduct it.

Instructors should, if possible, be men of better than average physique and more or less accomplished athletes, ready and able, if necessary, to demonstrate personally what they require of the men. The possession of these qualtities by officers is an important asset in the development of discipline, efficiency, and morale in their commands.

Instructors must be conscientious, painstaking, and patient, and have the ability to create a feeling of receptiveness among those being instructed, through which alone willing responsiveness can be engendered.

Above all, instructors must constantly bear in mind that the exercises are the means and not the end of the training; therefore, if there be any doubt in their minds as to the effect of an exercise, it is always well to err on the side of safety. Underdoing may be corrected while overdoing may not.

The object of this instruction is not the development of experts, but of the mass by methods which if conscientiously and consistently applied will result in the attainment of the object sought. Individuals who show special aptitude in any particular athletic activity may be encouraged along the line of their specialty, but never to the neglect of their other training or at the expense of their fellows.

Officers in charge of this instruction are cautioned that their success will depend upon working according to a carefully prepared schedule of lessons progressively and systematically arranged and all aimed at the attainment of the ultimate general object.

Explanations and Corrections. The men should always be *at ease* or at *attention* before explanations or corrections are made. All long drawn out explanations should be avoided and corrections when made should be brief, concise, and definite. With practice, instructors develop the faculty of interpolating cautions and corrections and of inciting men to increased effort and snappiness while they are exercising, without interfering with the continuation of an exercise or its cadence.

Rests. The frequency and duration of rest periods should be determined by the condition of the men and the length of the drill period. With beginners the rests should be frequent, but as the men gradually round into condition the frequency and duration of the rests should be gradually decreased.

Repetition. It is impossible to lay down a hard and fast rule governing the number of times any particular exercise may be repeated advantageously. This is a matter that must be left entirely to the judgment of the instructor, who should know the capabilities and limitations of the men being instructed. The time of the day, the amount of physical effort the men have undergone before instruction, what they will be expected to undergo after it, and the nature of the exercise itself, are all factors to be considered in regulating these repetitions. Should any question relating to this arise in any instructor's mind, he should always err on the side of safety.

Commands.

Importance of Commands. The importance of the ability to give commands properly is often underestimated. Invariably the performance is the direct reflection of the command calling for it. If a command be delivered distinctly, concisely, with energy and snap and with some regard to rhythm, the performance will be found to fit the command; just as a lifeless, slovenly, and disorganized performance will result from a careless and indifferent command.

An officer should, by constant practice, cultivate his vocal organs until he develops a commanding voice, with the requisite amount of power and quality and with proper pitch. Every individual's voice will carry farther if pitched in a certain key. Officers should make it their business to find out what key that is and develop it.

Use of Voice. Commands should be given with what is commonly known as a "chest voice" in contradistinction to what is known as a "head or nasal voice." The former is usually a low-pitched voice that will carry farther, be more distinct, and require very much less effort than the latter.

In order to cultivate the chest voice the muscles of the chest, neck, and those that control the larynx should be relaxed in order to enable the wind pipe to be fully distended when the air is being forced up through it and against the vocal chords by the action of the diaphragm.

The mouth should be opened fully and the words of the command should be articulated and enunciated with utmost distinction and precision and with sufficient volume to fit the occasion.

The following simple exercises are recommended to cultivate these qualities:

Take a moderately deep inhalation and then, following the instruction given above, utter the word *hong* moderately loud and in the proper pitch for three or four seconds; inhale again and repeat the process, uttering the word *kong*.

The volume should be gradually increased and variation given to the exercise by substituting the words *sing-song* and *ding-dong*. These words are recommended because they are simple, easily remembered, and because the sounds required in uttering them adapt themselves best to bringing out the intent of the instruction.

All the words of a command, particularly of the preparatory or explanatory command, must be articulated distinctly. The enunciation must be clear, have the proper intonation possesses the proper inflection and power, and be convincing.

Preparatory Commands and Commands of Execution. There are two kinds of military commands: the preparatory and the command of execution. The preparatory command describes and specifies what is required and the command of execution calls what has been prescribed into action. All preparatory commands must be given with a rising inflection, the instructor having the feeling that he is lifting the entire command with his voice and creating an eagerness on the part of the men to be off when the command of execution is literally shot at them.

Commands of Continuation. These commands are used in the repetition of an exercise and may be expressed in words or in numerals. In either case, however, they must not only be used to indicate rhythm or the cadence of an exercise, but they must also be indicative of the manner in which each movement of an exercise is performed.

Through the proper use of these commands long explanations are avoided and instructors are able to place themselves in absolute accord with the men by conveying the "feel" of an exercise to them. Thus: 1. *Bend trunk forward,* 2. EXERCISE, O-n-e, *two,* o-n-e, *two.*

Here the long drawn out o-n-e indicates that the movement should be performed slowly, while the short, snappy *two* indicates a quick recovery.

Commands for Static Exercises. Static exercises are those in which a posture is held for an appreciable length of time. If it is the purpose of the instructor to have any exercise performed in this manner, he will use words rather than numerals to indicate the successive movements. Thus: 1. *On toes,* 2. RISE, 3. *Knees,* 4. BEND, 5. *Knees,* 6. EXTEND, 7. *Heels,* 8. DOWN, or 1. *Trunk forward,* 2. BEND, 3. RECOVER.

In these commands the command of execution must indicate how the movement is to be performed.

In the first of these exercises the command RISE is given sharply and snappily, indicating that a snappy performance is wanted; the command BEND is drawn out moderately, to indicate moderately slow performance; the command EXTEND is also given rather slowly, while the command DOWN is given with more snap and finality.

Commands for Continued Exercises. In these the preparatory commands must explain the entire exercise, while the command of execution, which is almost invariably confined to the word "exercise," calls for the continuation of the exercise; the commands fitting the repetition being usually confined to numerals.

When very large bodies of men are exercising simultaneously it is advisable to follow up the preparatory command with another that acts as a cautionary command. This will insure the exercise being performed simultaneously and in unison by the whole number. Thus: 1. *Swing arms downward and sideward,* 2. *In cadence,* 3. EXERCISE.

Commands of Discontinuation. To discontinue an exercise performed rhythmically or in cadence, the command HALT is given in place of the last numeral. In order to prepare the men for this command all numerals used in the final repetition should e spoken with a rising inflection. Thus: 1. *Thrust arms forward and sideward alternately,* 2. EXERCISE, *One, two, three, four, one, two, three,* HALT.

When numerals are used they should always be equal to the number of movements of which the exercise is composed. Thus, an exercise of two movements will be repeated at one, two; one of four movements will require four counts, etc.

If any particular movement of an exercise is to be performed with more energy than the others, the numerals corresponding to that movement should be emphasized. In fact, in all cases, the manner in which the numerals are spoken should be indicative of the nature of the movement required.

Interval Between Commands. The interval between the preparatory command and the command of execution should be long enough to insure the average man having understood the former before the latter is given.

CHAPTER II.

POSITIONS AND FORMATIONS.

Position of Atttention. This is the position an unarmed, dismounted soldier assumes when in ranks or whenever the command ATTENTION is given. (Plates 2 and 3.)

In physical training nothing exceeds the importance of proper and correct posture; it is the very foundation upon which any successful course in physical training must be based.

This is particularly true of men being trained for the military profession, as it exerts the traditional psychological influence which inspires men to cultivate smartness, neatness, poise, and pride in their personal appearance. These qualities are identified with the military service and have always been found coincident with discipline.

This position must be one of mental as well as of physical alertness, and for that reason it must be free from all mental and physical contraint. All the muscles employed must be contracted only enough to maintain the position and any tendency toward rigidity should be avoided, as the position is one that depends upon coordination and not necessarily upon muscular effort.

Instructors are cautioned to describe, illustrate, and explain the positions of the various parts of the body when at attention, carefully pointing out common errors. Proper posture must be insisted upon at all times, both in and out of ranks, until the men assume it from habit.

The instructor commands: 1. *Troop,* 2. ATTENTION. At this command the men spring into the position described below, bringing the heels together with a click. For the purpose of precise and simultaneous performance the men should be cautioned not to move until the last syllable of the command *A-t-t-e-n-shun* is spoken.

Heels on the same line and as near each other as the conformation of the man permits.

Feet turned out equally and forming an angle of 45°.

Knees straight without stiffness.

Hips level and drawn back slightly; body erect and resting equally on hips; chest lifted and arched; shoulders square and falling equally.

Arms hanging straight down without stiffness, so that the thumbs are along the seams of the breeches; backs of the hands out; fingers held naturally.

Head erect and squarely to the front; chin drawn in so that the axis of the head and neck is vertical; eyes straight to the front.

Weight of the body resting equally on the heels and the balls of the feet.

In assuming the position of the soldier, or of attention, the heels are brought together smartly and audibly.

Positions of At Ease; Stand at, Ease; and Rest.

At the command AT EASE keep the right foot in place. Silence, but not immobility, is required.

To assume the position of 1. *Stand at,* 2. EASE (Plate 4), at the command EASE, move the left foot smartly 12 inches to the left of the right foot; at the same time, clasp the hands behind the back, palms to the rear, thumb and fingers of the right hand clasping the left thumb, without constraint. Preserve silence and immobility, except that the head and eyes may be turned toward the instructor or unit commander. This command is given when it is desired to maintain a uniform appearance of the organization.

At the command REST, neither immobility nor silence need be maintained. The right foot, however, must be kept in place.

Formations. The following formation is recommended for the setting-up exercises, it being simpler and more compact than any other. It requires less time and can be applied with equal facility and promptness to any unit, as it requires no more time to form a regiment than it does to form a squad. The unit to be drilled is formed in column, facing the instructor, short men in front. 1. *Extend to the left,* 2. MARCH. (Plate 5.) At this command No. 1 stands fast, with arms extended sideward; Nos. 2, 3, and 4 turn to the left and, taking up the double time, run forward to the original left, Nos. 2 taking 2 paces, Nos. 3 taking 4 paces, and Nos. 4 taking 6 paces, all facing to the front after taking the required distance, with arms extended sideward, the distance between the finger tips of adjacent files to be about 12 inches.

1. *Arms,* 2. DOWN. (Plate 6.) At this command the arms are lowered smartly to the sides. The front rank men are now covered by the rear rank and too close to carry out the exercises.

To provide ample space for all, the instructor now commands: 1. *Rear rank to the right (left),* 2, UNCOVER. (Plate 7.) At the command UNCOVER,

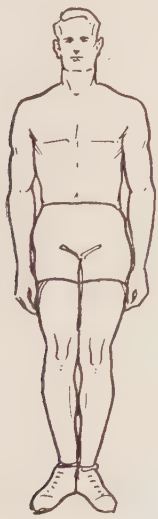

Plate 2.

Plate 3.

Plate 4.

each rear rank man stride jumps sideward to the right, squarely in the middle of the interval. In doing this he swings his right leg sideward and jumps from his left foot and lights on his right foot, smartly bringing the left into position against the right.

To assemble the command, the instructor commands: 1. *Assemble,* 2. MARCH. At the command MARCH, all return to their original position in column at double time.

Starting Positions. In nearly all of the arm exercises it is necessary to hold the arms in some fixed position from which the exercise can be most advantageously executed and to which position the arms are again returned upon completing the exercise. These positions are termed "starting" positions and though it may not be absolutely necessary to assume one of them before or during the employment of any other portion of the body, it is advisable to do so because they give to the exercise a finished, uniform, and graceful appearance.

In the following positions, at the command DOWN, resume the position of attention. Practice in assuming the starting position may be had by repeating

the commands of execution, such as RAISE, DOWN. Intervals having been taken and attention assumed, the instructor commands:

1. *Arms forward,* 2. RAISE, 3. *Arms,* 4. DOWN. (Plate 8.) At the command RAISE, raise the arms to the front, smartly extended to their full length, till the hands are in front of and at the height of the shoulders, palms down, fingers extended and joined thumbs under index fingers. At *Arms* DOWN, resume the position of attention.

1. *Arms sideward,* 2. RAISE, 3. *Arms,* 4. DOWN. (Plate 9.) At the command RAISE, the arms are raised laterally until horizontal, palms down,

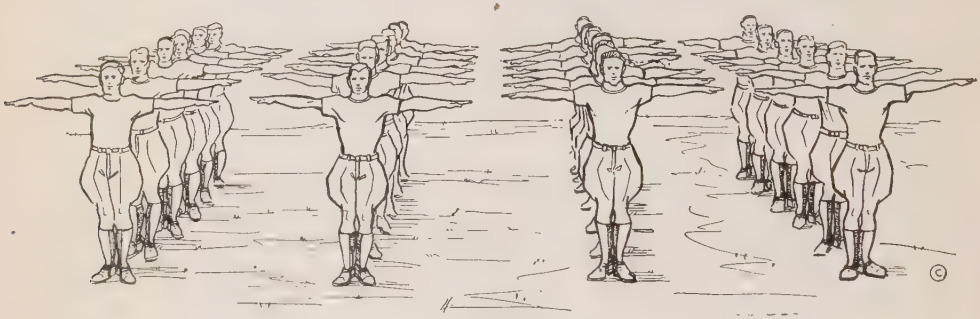

Plate 5.

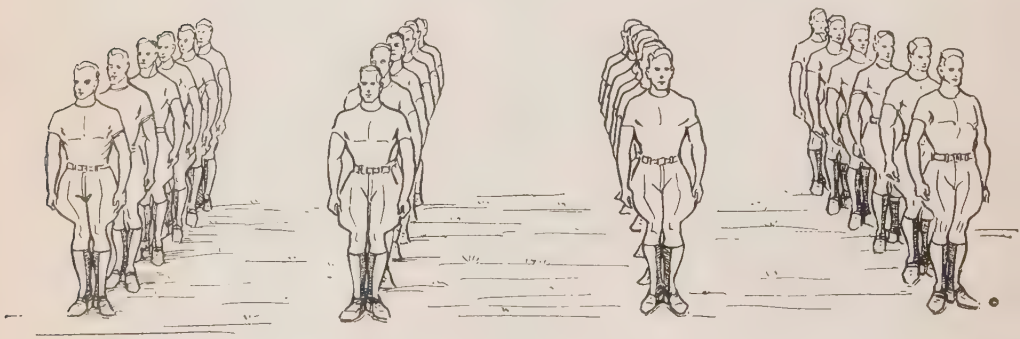

Plate 6.

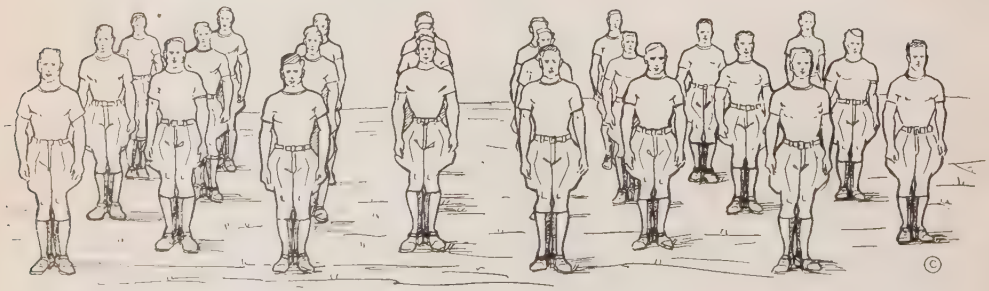

Plate 7.

fingers as in (1) above. The arms are brought down smartly without allowing them to touch the body.

1. *Arms forward, upward,* 2. RAISE, 3. *Arms,* 4. DOWN. (Plate 10.) At the command RAISE, the arms are raised forward and upward, extended to their full length, until they are vertically overhead, backs of hands turned outward, fingers as in (1) preceding. This position may also be assumed by raising the arms laterally until vertical. The instructor cautions which way he desires it done.

1. *Arms to thrust.*, 2. RAISE, 3. *Arms,* 4. DOWN. (Plate 11.) At the command RAISE, the forearms are raised to the horizontal, elbows forced back, upper arms against the body, hands tightly closed, knuckles down.

1. *Hands on hips,* 2. PLACE, 3. *Arms,* 4. DOWN. (Plate 12.) At the command PLACE, the hands are placed on the hips, the finger tips in line with trouser seams; fingers extended and joined, thumbs to the rear, elbows pressed back.

1. *Hands on shoulders,* 2. PLACE, 3. *Arms,* 4. DOWN. (Plate 13.) At the command PLACE, the forearms are raised to the vertical position, palms

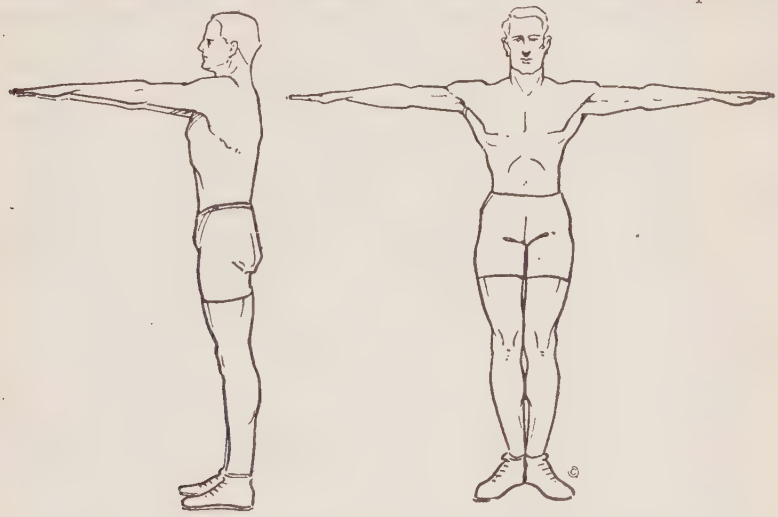

Plate 8. Plate 9.

inward, without moving the upper arms; and the elbows raised upward and outward until the upper arms are horizontal; at the same time bending the wrist and allowing the finger tips to rest lightly on the shoulders.

1. *Fingers in rear of head,* 2. LACE, 3. *Arms,* 4. DOWN. At the command LACE, the arms and forearms are raised as described in (6) above and the fingers laced behind the lower portion of the head, elbows well up and pressed well back.

These positions should be practiced frequently, and instead of recovering the position of attention after each position, the instructor may change directly from one to another by giving the proper commands instead of commanding *Arms,* DOWN. These changes should, however, be made only after the positions are thoroughly understood and correctly assumed.

CHAPTER III.

SETTING-UP EXERCISES.

General. The setting-up exercises form the basis upon which the entire system of physical training in the service is founded; therefore, great emphasis must be given to them. Through the number and variety of the movements they offer it is possible to develop the body more harmoniously than is possible by any other single means. Furthermore, since they require no apparatus of any description, it is possible to practice them anywhere, proper hygienic conditions being the only necessary adjunct to their success.

They are of particular value in training men for the service. In addition to their importance in the development of the muscles and endurance and the fact that through them it is possible to exert a direct influence upon the various vital organs, they are the very best means through which coordination, smartness, precision, and snappiness may be developed. In fact, their value in this latter respect is at least equal to their physiological value, and they have been very properly termed "disciplinary physical training exercises."

They should always precede the more strenuous forms of training, as they prepare the body for the greater exertion these forms demand.

Composition of Lessons. Each lesson must embrace exercises for all parts of the body, for the purpose of each lesson is the harmonious development of the *entire* body. The following sequence of exercises has been generally adopted as being the most efficacious from a physiological point of view and should be adhered to in planning the lessons:

Introductory arm movement.
Leg exercise.
Trunk exercise, turning.
Foot or leg exercise.
Trunk exercise, dorsal, bending forward.
Shoulder exercise.
Trunk exercise, lateral, bending sideward.
Arm exercise.
Trunk exercise, abdominal, bending backward.
Balancing exercise.
Breathing exercise.

In order to insure an intelligent response, attention should be called to the object of each exercise. Each movement of every exercise should first be performed separately at a command that is indicative of the movement required, and each of the various positions thus assumed should be held momentarily before assuming the next position. This insures accuracy and precision.

After repeating an exercise in this manner several times, the exercise may be continued in a regular cadence, which, however, should be so divided that it will bring out the full physiological value of the various movements.

In order to inculcate rhythmical and coordinated movements and flexibility of the mass, such exercises as lend themselves to rhythmical repetition may be performed in that manner. However, this should never be done at the expense of the physical value of an exercise.

As the value of an exercise depends upon the manner of its application more than upon the exercise itself, the cadence in which it is performed should be fitted to the exercise instead of the exercise being fitted to the cadence.

Progressive Difficulty. In general, the amount of energy required to perform an exercise may be progressively increased by increasing the number of repetitions or the cadence in which an exercise is performed.

It is possible, however, to increase the severity or difficulty of an exercise by progressively adding to its radius of action or by changing its radius in conjunction with its principal movement. In this case new muscle groups are employed or greater effort is demanded of those already engaged on account of the wider radius.

Thus, in the trunk exercises the part about which the movement takes place is held fixed by the hands in the beginning until sufficient coordination has been developed and these parts can be controlled without the aid of the hands. The radius of the exercise is augmented by assuming certain horizontal or perpendicular positions with the arms.

Finally, difficulty may be added by changing the radius of action from one plane to another or from one position to another in the same plane simultaneously with the principal movement.

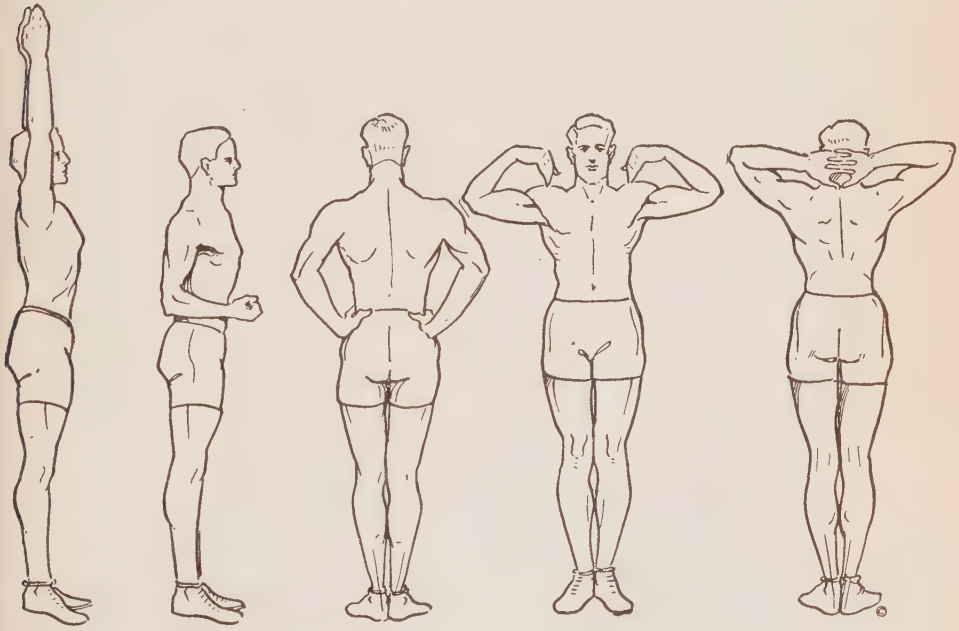

Plate 10. Plate 11. Plate 12. Plate 13. Plate 14.

From the beginning the men must be coached to develop proper coordination, precision, and a sense of rhythm in order that they may be able to move any part of the body independently of the other parts and also in unison with the others.

Terminology. In order to simplify the course as much as possible technical terms have been avoided and words in everyday use have been substituted, making it unnecessary for the men to memorize a lot of terms that mean nothing to them. Instructors should confine themselves to the terminology used in this course. If substitutions are made they should be along lines of simplification and not of involution.

Course for Recruit Instruction. This course comprises 10 lessons progressively arranged. The length of time devoted to any particular lesson must be determined by the proficiency of the men; no advance lesson should be taken before the preceding lesson is properly performed. Generally, the entire course can be

covered in three months. It is advisable to include the essential exercise of a lesson in the following lesson.

Exercises.

First Lesson. For the sake of illustration all necessary commands to perform and to discontinue an exercise are given. In the succeeding lessons the command of execution, which is almost invariably EXERCISE, and the command of discontinuation, HALT, which is always given in place of the last count, are omitted.

Starting positions. Repeat those shown in plates 8-14 inclusive.

Exercises. (Each exercise consists of two movements.)

1. *Arms forward*, 2. RAISE, 3. *Swing arms downward and forward*, 4. EXERCISE, 5. HALT. Count two. The arms remain fully extended and the chest is arched on first count.

1. *Hands on hips*, 2. PLACE, 3. *Rise on toes*, 4. EXERCISE, 5. HALT. (Plate 15.) Count two, emphasizing the first count. The body is raised smartly, until the feet are extended as much as possible, and lowered gently; chest is arched on first count.

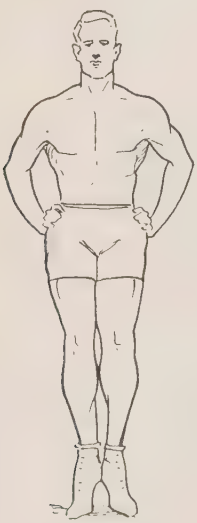

Plate 15.

Plate 16.

Plate 17.

1. *Arms to thrust*, 2. RAISE, 3. *Bend neck forward (or backward)*, 4. EXERCISE, 5. HALT. (Plate 16.) Count two, drawling the first count. The chin is drawn in and the neck bent forward slowly, recovery being smart; chest is arched on first count.

1. *Hands on hips*, 2. PLACE, 3. *Turn trunk right (or left)*, 4. EXERCISE, 5. HALT. (Plate 17.) Count two, drawling the first count. The trunk is turned slowly to the right or left as far as possible; hips remaining square, knees straight and feet firm; the chest is arched on the first count.

1. *Hands on hips*, 2. PLACE, 3. *Quarter bend knees*, 4. EXERCISE, 5. HALT. (Plate 18.) Count two, emphasizing the second count. The closed heels are not raised. The knees are bent outward over the feet to an angle of 45°. Head and trunk erect, shoulders square.

1. *Hands on hips*, 2. PLACE, 3. *Bend trunk forward, back arched*, 4. EXERCISE, 5. HALT. (Plate 19.) The chest is elevated and the body is bent forward slowly, 30°; chin up, knees straight and legs perpendicular.

1. *Arms to thrust*, 2. RAISE, 3. *Raise and lower shoulders*, 4. EXERCISE, 5. HALT. (Plate 20.) Count two, emphasizing both. The shoulders are raised smartly as high as possible and brought back to position smartly.

1. *Hands on hips*, 2. PLACE, 3. *Bend trunk sideward right (or left)*, 4. EXERCISE, 5. HALT. (Plate 21.) Count two, drawling the first count. The chest is elevated and the trunk bent sideward slowly at the waist; hips are fixed and legs perpendicular, knees straight; back is arched and the head moves with the trunk.

1. *Arms forward*, 2. RAISE, 3. *Stretch arms sideward*, 4. EXERCISE, 5. HALT. (Plates 8 and 9.) Count two, drawling the first count; recover smartly.

Plate 18.

Plate 19.

Plate 20.

Plate 21.

Plate 22.

Plate 23.

1. *Hands on hips*, 2. PLACE, 3. *Bend trunk backward*, 4. EXERCISE, 5. HALT. (Plate 22.) Count two, drawling the first count; recover smartly. The The arms, fully extended, are stretched to the side horizontal, slowly; knuckles up, chest elevated on first count.

1. *Arms to thrust*, 2. RAISE, 3. *Raise and lower shoulders*, 4. EXERCISE, chest is elevated and the trunk is bent backward, in the region of the shoulder blades (dorsal region) as far as possible. The chin is drawn in and the neck forced back; hips fixed, legs perpendicular and knees straight.

1. *Hands on hips*, 2. PLACE, 3. *Raise knees forward, alternately*, 4. EXER-

CISE, 5. HALT. (Plate 23.) Count four, emphasizing the first and third counts. The thigh, the leg flexed at right angles to it, is raised to the front horizontal smartly, held momentarily and then lowered. Trunk remains perpendicular.

1. *Breathing exercise (raising and lowering arms sideward, upward),* 2. INHALE, 3. EXHALE. At the command INHALE the arms are raised slowly laterally to the perpendicular accompanied by a long and deep inhalation. At the command EXHALE the arms are brought down smartly with a forcible exhalation.

Note. The men should be cautioned to inhale through the nostrils and to exhale through the mouth.

Second Lesson. *Starting positions.* Repeat as in the first lesson.

Exercises.

1. *Arms forward,* 2. RAISE. Swing arms sideward. Count two, emphasizing the first count. The arms, palms down, are swung horizontally sideward, the chest being elevated with that movement.

1. *Arms to thrust,* 2. RAISE. Rise on toes. Count two, and perform as in the first lesson.

Plate 24.

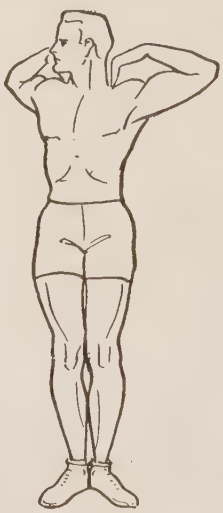

Plate 25.

Plate 26.

1. *Arms to thrust,* 2. RAISE. Turn head right (or left). (Plate 24.) Count two, drawling the first count; recover smartly. The head, chin square, is slowly turned to the right as far as possible, at the same time the chest is elevated, shoulders square.

1. *Hands on shoulders,* 2. PLACE. Turn trunk to the right (or left). (Plate 25.) Count two, drawling the first count; recover smartly. Perform as described in the first lesson, being careful to keep the elbows in line with the shoulders.

1. *Hands on hips,* 2. PLACE. Full bend knees. (Plate 26.) Count two; emphasize the second count. The knees are separated and bent as low as possible, and forced out and downward; heels remain together and trunk and head erect.

1. *Hands on hips,* 2. PLACE. Bend trunk forward, back arched. (Plate 19.) Count two and perform as in the first lesson.

1. *Arms to thrust,* 2. RAISE. Move shoulders forward and backward. (Plate 27.) Count two, drawling the second count. The shoulders are relaxed and moved forward as far as possible and then moved backward slowly; trunk and head erect.

1. *Arms sideward,* 2. RAISE. Bend trunk sideward right (or left). (Plate 28.) Count two and perform as in the first lesson. Arms remain stretched in the plane of the shoulders.

From attention: Stretch arms forward and sideward. Count four, drawling the first three and making the last snappy. The arms fully extended, palms down, are stretched to the front horizontal and from there to the side horizontal and back again to the front horizontal and then lowered. The first three movements are performed slowly; the last, however, is done as snappily as possible. The chest is elevated in the side stretch.

1. *Hands on hips,* 2. PLACE. Bend trunk backward. (Plate 22.) Count two and perform as in the first lesson.

1. *Arms to thrust,* 2. RAISE. Extend legs forward, alternately. (Plate 29.) Count four, emphasizing the first and third. The leg is extended forward snappily, knee straight and toes depressed to about 6 inches from the ground and held there momentarily, and then replaced. Trunk and head erect.

Plate 27.

Plate 28.

Plate 29.

Breathing exercise: Inhale, raising arms sideward, upward; exhale, lowering arms laterally.

Third Lesson. *Starting positions.*

Exercises.

1. *Arms forward,* 2. RAISE. Swing arms downward and sideward. Count four, emphasizing the first and third counts. The arms are swung downward and back to the front horizontal, and then sideward and back to the front horizontal. Arms extended, palms down.

1. *Hands on hips,* 2. PLACE. Rise on toes of right and left foot, alternately. (Plate 30.) Count four, emphasizing the first and third counts. The body is extended on the toes of the right foot and then on those of the left. Heels remain together, trunk and head erect.

1. *Hands on hips,* 2. PLACE. Bend head forward and backward. Count four, drawling the first and third counts. Perform as described in the first lesson.

1. *Arms sideward,* 2. RAISE. Turn trunk sideward right and left. (Plate 31.) Count four, drawling the first and third counts. Perform as described in the first lesson. Arms remain in the plane of the shoulders and move only with the trunk.

1. *Hands on hips,* 2. PLACE. Rise on toes and full bend knees. Count four, emphasizing the first count. The body is extended on toes; then the knees are bent as low as possible and then straightened and the heels lowered. Body and head remain erect.

1. *Fingers in rear of head.* 2. PLACE. Bend trunk forward half bend. Count two, drawling the first count. The body is bent forward slowly at the waist until it is at right angles to the legs, back flat and elbows in the plane of the shoulders.

1. *Arms to thrust,* 2. RAISE. Move the shoulders forward, upward, backward, and recover. Count four, drawl the first and third counts. The shoulders are relaxed and moved forward as far as possible, then raised in that position; then slowly stretched back and then lowered to their normal position.

1. *Hands on shoulders,* 2. PLACE. Bend trunk sideward, right and left alternately. Count four, drawling the first and third counts. Perform as described in previous lessons, elbows remaining in the plane of the shoulders.

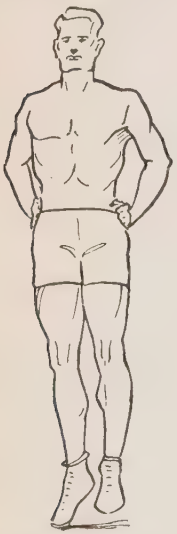

Plate 30.

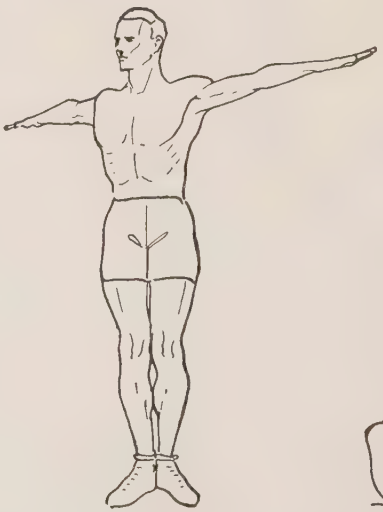

Plate 31.

Plate 32.

From attention: Stretch arms sideward, upward, sideward, and recover. Count four, drawling the first three counts and making the last count snappy. The arms are stretched laterally in the plane of the shoulders, palms down in the horizontal, and outwards in the perpendicular position.

1. *Arms to thrust,* 2. RAISE. Bend trunk backward. Count two, drawling the first count. Perform as described in the first lesson.

1. *Hands on hips,* 2. PLACE. Extend legs backward, right and left, alternating. (Plate 32.) Count four, the first and third to be snappy. The leg with toes depressed and knee straight is smartly extended to the rear, the foot being about 6 inches from the ground, held there momentarily and then brought back to position. Trunk remains erect and chest is elevated.

Breathing exercise: Inhale, raising arms forward-upward; exhale lowering arms laterally.

Fourth Lesson. *Starting positions.*
Exercises.

1. *Hands on shoulders,* 2. PLACE. Extend arms forward; swing sideward, forward, and recover. Count four, emphasizing the first and fourth counts. The arms are extended forward, palms up, then swung to the side horizontal; then to the front horizontal and back to starting position

1. *Hands on hips,* 2. PLACE. Rise on toes, in quick succession. Count two in quick succession. Perform as in the first lesson without pausing.

1. *Hands on hips,* 2. PLACE. Turn head right and left alternately. Count four, drawling first and third counts. Perform as described in the first lesson.

1. *Arms forward,* 2. RAISE. Turn trunk right and left alternately and stretch arms sideward. Count four, drawling the first and third counts. As the trunk is being turned, the arms are stretched to the side horizontal slowly.

1. *Arms to thrust,* 2. RAISE. Half bend knees, in quick succession. Count two quickly and in quick succession. The knees are bent and extended as described in the first lesson without pausing.

1. Arms forward, 2. RAISE. Bend trunk forward and stretch arms to side horizontal. (Plate 33.) Count two, drawling the first count. The trunk is bent as described in the first lesson, at the same time and arms are stretched to the side horizontal.

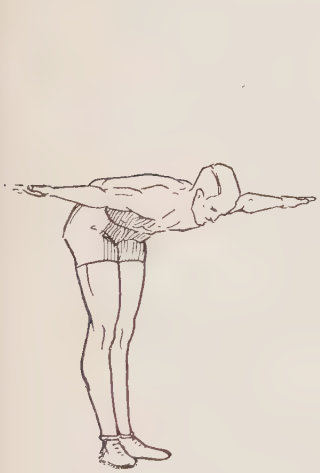

Plate 33.

Plate 34.

Plate 35.

1. *Hands on shoulders,* 2. PLACE. Move elbows forward and backward. Count two, emphasizing and drawling the second count. With the finger tips remaining in contact with the shoulders, the elbows are moved forward to the front horizontal and then slowly stretched back to the starting position.

1. *Arms forward,* 2. RAISE. Bend trunk sideward right and left and stretch arms to side horizontal. (Plate 28.) Count four, drawling the first and third counts as the trunk is bent sideward slowly, the arms are stretched to the side horizontal, back is arched, chest stretched and trunk erect.

From attention: Stretch arms forward, sideward, upward, sideward, forward and recover. Count six, drawling all counts except the last, which is short and snappy. The arms are stretched to the front horizontal, palms down, then to the side horizontal, palms up, then to the perpendicular, palms in, and returned to the front horizontal in reverse order from where they are lowered as smartly as possible.

1. *Arms forward,* 2. RAISE. Bend trunk backward and stretch arms to the side horizontal. (Plate 34.) Count two, drawling the first count. The arms are stretched to the side horizontal as the trunk is being bent.

1. *Arms sideward,* 2. RAISE. Extend legs sideward alternately. (Plate 35.) Count four, emphasizing the first and third counts. The leg fully extended, with toes depressed, is extended briskly to the side and held there momentarily and then replaced. The trunk and head remain as nearly in the perpendicular as possible.

Breathing exercise: Inhale, raising arms, sideward and upward; exhale, lowering, forward and downward.

Fifth Lesson. *Starting positions.*

Exercises.

1. *Arms to thrust,* 2. RAISE. Thrust arms forward, swing downward and forward and recover. Count four, emphasizing the first and fourth counts.

Plate 36.

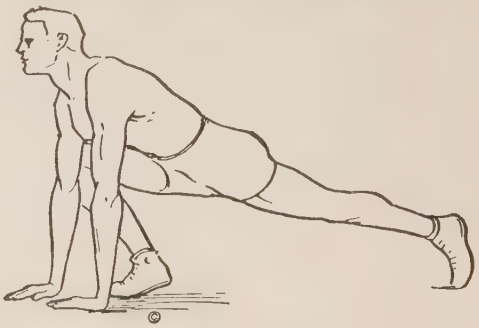

Plate 37.

Plate 38.

Plate 39.

Plate 40.

The arms are thrust to the front horizontally, knuckles up, then swung downward and to the rear and forward again to the front horizontal and flexed to the starting position.

1. *Fingers in rear of head,* 2. PLACE. Rise on toes and rock. Count two, in quick succession. Being on the toes, the body is raised and lowered by a series of quick extensions and flexions of the toes; heels together and kept from touching the ground.

1. *Hands on hips,* 2. PLACE. Bend head forward and backward. Count two, drawling the first and third counts and perform as previously described.

1. *Hands on shoulders,* 2. PLACE. Turn trunk right and left and stretch arms sideward in the plane of the shoulders. (Plate 31.) Count four, drawling the first and third counts. As the body is turned the arms, palms down, are stretched sideward in the plane of the shoulders.

1. *To the squatting position,* 2. BEND. Extend right and left legs backward alternately. (Plates 36 and 37.) Count four, emphasizing the first and third counts. At the command BEND, a full bend of the knees is executed and the hands are placed on the ground between the knees. In that position the legs are fully extended backward, alternately resting on the toes and returned to the squatting position.

1. *Hands on shoulders,* 2. PLACE. Bend trunk forward, back arched, and stretch arms sideward. (Plate 33.) Count two, drawling the first count. As the trunk is being bent the arms are stretched sideward, palms down, in the plane of the shoulders.

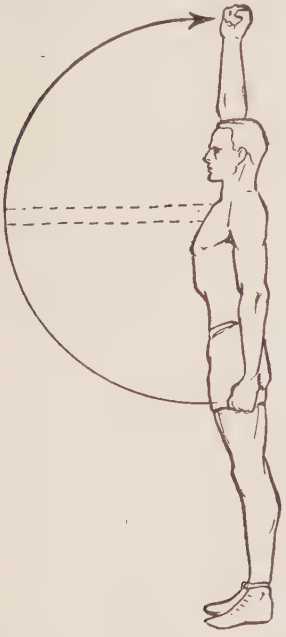

Plate 41.

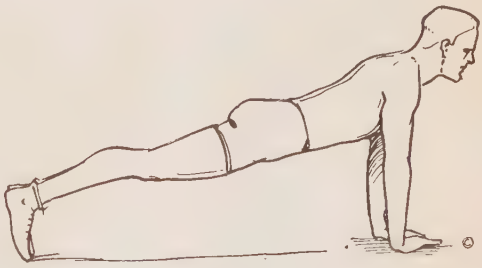

Plate 42.

From attention: Curl shoulders forward and backward. (Plate 38). Count two, drawling both counts. The shoulders are moved forward, the arms rotating inward until the knuckles are turned in; then the shoulders are moved backward slowly and the arms are rotated until the palms are turned out.

1. *Hands on shoulders,* 2. PLACE. Bend trunk sideward right and left alternately, and stretch arms sideward. (Plate 28.) Count four, drawling the first and third counts. The arms are stretched in the plane of the shoulders as the trunk is being bent.

From attention: Flex forearms vertically; extend arms upward and return in reverse order. (Plate 39.) Count four, emphasizing the second count. The forearms are flexed until the hands, palms in, are squarely in front of the shoulders and then extended upward forcibly; then flexed again and lowered to the sides.

1. *Hands on shoulders,* 2. PLACE. Bend trunk backward and stretch arms sideward. (Plate 34). Count two, drawling the first count. As the trunk is bent backward the arms are stretched to the side horizontal, palms up.

From attention: Raise arms and right (left) leg forward; stretch arms sideward and move leg backward; return in reverse order. (Plate 40.) Count four, each count to be short and snappy with an appreciable interval between the counts. The arms and the right leg are brought forward smartly; then the arms are moved to the side horizontal, and the leg is moved backward smartly; the return is in reverse order. There should be a distinct pause in each position.

Breathing exercise: Inhale, raising arms sideward and upward; exhale quickly, lowering them sideward and downward.

Sixth Lesson. *Starting positions.*

Exercises.

1. *Arms forward.* 2. RAISE. Swing right arm upward and left arm downward; then left arm upward and right arm downward. (Plate 41.) Count four, emphasizing the first and third counts. The right arm is swung directly upward and the left downward, palms in; then the arms are returned to the starting positions; the left arm is then swung upward and the right downward; then the starting position is again assumed. The arms are kept fully extended throughout the swings.

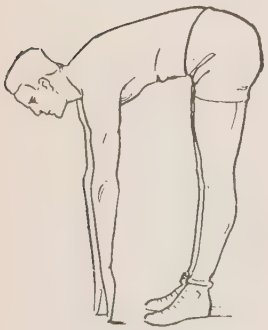

Plate 43.

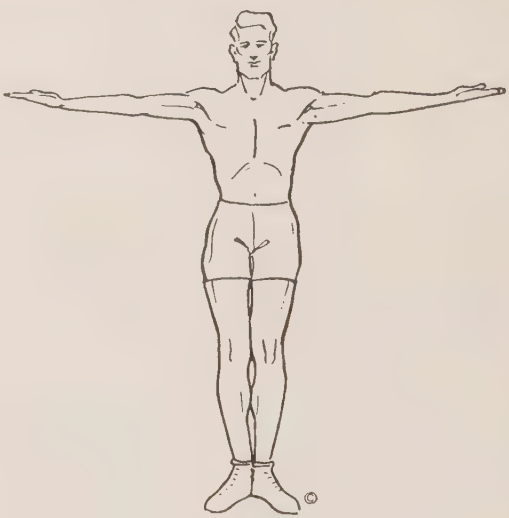

Plate 44.

1. *Hands on shoulders,* 2. PLACE. Rise on toes and extend arms upward. Count two, emphasizing the first count. The arms and toes are extended smartly and simultaneously.

1. *Hands on hips,* 2. PLACE. Turn head right and left and bend neck forward and backward. Count eight, emphasizing the odd counts. Perform as previously prescribed.

1. *Arms upward,* 2. RAISE. Turn trunk right and left and lower arms to side horizontal, palms down. (Plate 31.) As the trunk is turned the arms are lowered and stretched in the side horizontal.

1. *To the squatting position,* 2. *Bend.* (Plate 36). Extend legs backward to the leaning rest (Plate 42), and recover. Count two, emphasizing the first count. Both legs are extended backward, resting on the toes; knees straight and body rigid; hands well under the shoulders; recover the squatting position.

1. *Hands on hips,* 2. PLACE. Full bend trunk forward and extend arms downward. (Plate 43). Count two, drawling the first count. The body is bent forward at the waist as low as possible and the arms extended until finger tips are as close to the ground as possible. Knees straight.

1. *Arms sideward,* 2. RAISE. Rotate arms forward and backward. (Plate 44.) Count two, drawling both counts. The arms are rotated forward and the shoulders squared.

1. *Arms upward,* 2. RAISE. Bend trunk sideward, right and left alternately, and lower arms to side horizontal. Count four, drawling the first and third counts. As the trunk is bent, the arms are lowered in the plane of the shoulder, palms down.

From attention: Stretch arms forward, sideward, upward, sideward, forward, and recover. (See fourth lesson).

1. *Arms upward,* 2. RAISE. Bend trunk backward and lower arms to side horizontal. (Plate 34.) Count two, drawling the first count. As the trunk is bent backward the arms are lowered to the side horizontal, palms down.

1. *Arms forward,* 2. RAISE. Raise extended right and left leg sideward alternately and move arms sideward. (Plate 35.) Count four, smartly. The extended leg is raised sideward as high as possible, toes depressed, without deranging position of the body, and the arms are moved to the side horizontal smartly. After a momentary pause the starting position is resumed.

Breathing exercise: Inhale, with any of the arm raisings; exhale with any of the arm lowerings.

Plate 45.

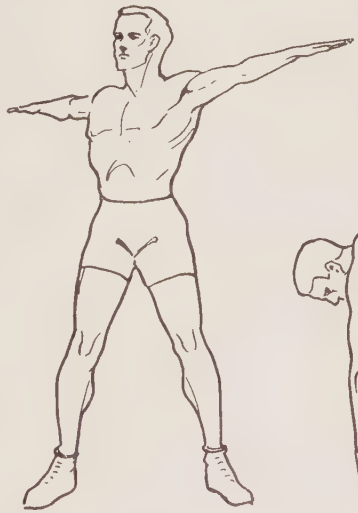

Plate 46.

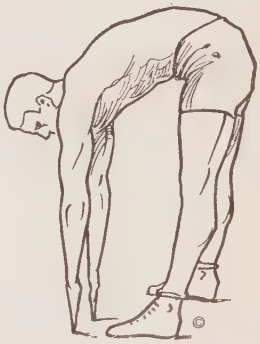

Plate 47.

Seventh Lesson. *Starting positions.*

Exercises.

1. *Arms sideward, palms up,* 2. RAISE. Circumduct arms backward (Plate 45.) Count two. The arms, fully extended, are circled backward, finger tips traversing a circle about 12 inches in diameter.

1. *Hands on hips,* 2. PLACE. Hop alternately on the right and left foot. Count four. While hopping, the unemployed leg is extended forward, knee straight, toes depressed.

1. *Hands on hips,* 2. *PLACE.* Repeat the neck exercise.

1. *Stride sideward right (or left) and raise arms forward,* 2. STRIDE. Turn trunk right and left and stretch arms to the side horizontal, palms down. (Plate 46.) Count four, drawling the first and third counts. In the stride position the distance between heels is about 20 inches. Turn the trunk and stretch arms sideward while in that position.

1. *To the squatting position,* 2. BEND. Extend legs backward to the leaning rest (Plate 42); bend and then extend arms while in that position; return to

the squatting position and recover the position of attention. Count six, emphasizing the first, second, fourth, and sixth counts. This exercise should first be performed statically; that is, each position held momentarily, before it is attempted in cadence.

1. *Arms to thrust*, 2. RAISE. Thrust arms forward and sideward. Count four, emphasizing the first and third counts. The arms should be thrust out forcibly, hands remaining closed, knuckles up.

1. *Stride sideward right (or left) and raise arms sideward*, 2. STRIDE. Full bend trunk forward and lower arms forward. Count two, drawling the second count. (Plate 47.) The knees remain straight and in the recovery the chest is elevated.

From attention: Stretch arms forward, sideward, upward, and return in reverse order, rising on toes with the upward stretch. Count six and perform as in the sixth lesson.

1. *Stride sideward right (or left) and raise arms forward*, 2. STRIDE. Bend trunk sideward right and left and stretch arms to the side horizontal.

Plate 48.

Plate 49.

(Plate 48.) Count four, drawling the first and third counts. The knees remain straight throughout the exercise; chest elevated and back arched.

1. *Arms to thrust*, 2. RAISE. Thrust arms upward and downward. Count four, emphasizing the first and third counts. In the upward thrust the knuckles are turned out and in the downward thrust they are turned forward.

1. *Stride forward, right (or left), arms forward*, 2. STRIDE. Stretch arms sideward and raise right and left leg backward, alternately. (Plate 49.) Count four, drawling the first and third counts.

Breathing exercise: Inhale, arm raisings; exhale, with arm lowerings.

Eighth Lesson. ***Starting positions.***

Exercises.

1. *Right arm forward and upward*, 2. RAISE. Swing right arm downward and left arm upward alternately. Count two, emphasizing both counts. The arms remain fully extended throughout the swings.

1. *Hands on shoulders*, 2. PLACE. Rise on toes and extend arm upward. Count two, emphasizing the first count. The extension should be performed snappily.

1. *Arms to thrust,* 2. RAISE. Repeat the neck bendings and turnings.

1. *Stride sideward right (or left), arm sideward,* 2. STRIDE. Turn trunk right and left and stretch arms upward. (Plate 50.) Count four, drawling first and third counts. Knees remain straight, feet firm, and hips fixed.

From attention: Bend to squatting position, extend legs to the leaning rest, legs separated, bend and then extend arms, return to the squatting position, and recover the position of attention. Count six, emphasizing the first, second, fourth, and sixth counts. Perform as in seventh lesson.

1. *Arms to thrust,* 2. RAISE. Thrust arms forward, sideward, upward, and downward, alternately. Count eight, emphasizing the odd counts.

1. *Stride sideward right (or left),* 2. STRIDE. Bend trunk forward, back arched, and stretch arms obliquely forward-upward. (Plate 51.) Count two, drawling the first count.

1. *Hands on shoulders,* 2. PLACE. Extend arms forward, swing sideward and forward, and recover starting position. Count four, emphasizing the first

Plate 50.

Plate 51.

Plate 52.

and fourth counts. Perform briskly, keeping arms fully extended, palms down, in the swings.

1. *Stride sideward right (or left), arms sideward,* 2. STRIDE. Bend trunk backward and stretch arms upward. (Plate 52.) Count two, drawling the first count. In bending backward the chest is elevated and hips remain fixed.

From attention: Flex arms horizontally and fling them sideward. (Plate 53.) Count two, emphasizing both counts. In flexing the arms the elbows are at the height of the shoulders.

1. *Arms sideward and right (or left) leg forward,* 2. RAISE. Swing the extended leg forward and backward. Count two, moderately fast. The leg being swung remains extended throughout the swing and the balance of the body should be maintained.

Breathing exercise: Inhale, with forward-upward arm raising; exhale, lowering arms downward and backward.

Ninth Lesson. *Starting positions.*

Exercises.

From attention: Flex arms vertically, change to the horizontal flexed position. (Plates 39 and 53.) Fling arms sideward and return in reverse order. Perform all movements snappily.

From attention: Swing arms upward and rise on toes. Count two, emphasizing the first count. The arms fully extended are swung upward forcibly, as the body is raised.

1. *Arms to thrust*, 2. RAISE. Repeat neck exercises.

1. *To the side straddle, hands on shoulders:* 2. HOP. Turn trunk right and left and extend the arms sideward. (Plate 54.) Count four, drawling the first and third counts.

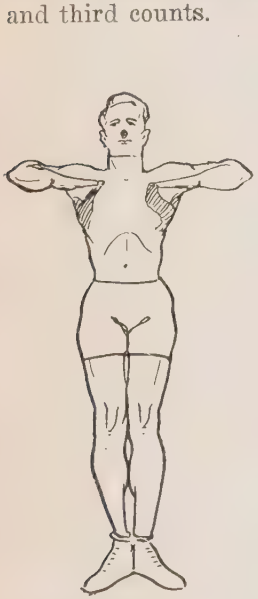

Plate 53.

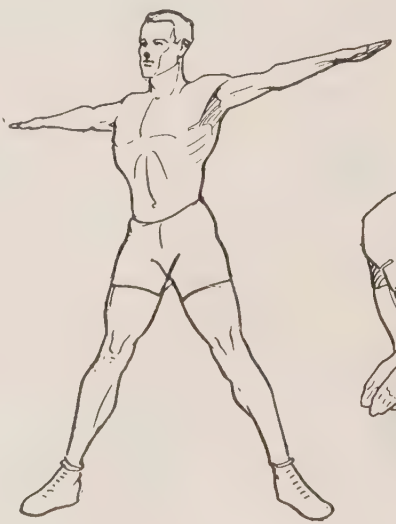

Plate 54.

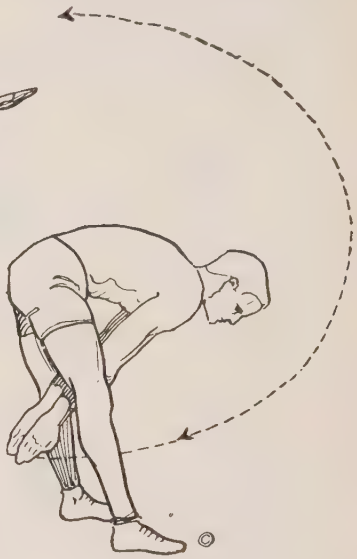

Plate 55.

NOTE. The side straddle position is assumed by hopping and separating the legs sideward; in alighting, the toes come in contact with the ground first and then the heels are lowered. The position is assumed in two movements: at *Hop,* the hop and the separation of the legs take place, the count *one* being given just as the toes strike the ground, and at *two* the heels are lowered. In order to recover the position of attention, command: 1. *To the position of attention,* 2. HOP, one, two. At the command HOP, the hop and the closing of the legs take place; the count *one* is given just as the toes, with heels together and knees slightly bent, come in contact with the ground, and at *two* the position is assumed by the heels being lowered, the knees being straightened and the arms being lowered to the sides.

1. *Arms to thrust*, 2. RAISE. Bend knees, quarter, half, and full bend and thrust arms sideward. Count four, emphasizing the third count. The knees are bent to the quarter, then to the half, and finally to the full bend, the arms being thrust forward forcibly in conjunction with the last leg movement.

1. *To the side straddle, arms overhead*, 2. HOP. Bend trunk forward and swing arms between the legs. (Plate 55.) Count two, emphasizing both counts. The trunk is bent forward at the waist and the arms swung through to the rear as far as possible. Knees remain straight.

1. *Hands on shoulders*, 2. PLACE. Extend right arm sideward and left forward and reverse the extensions alternately. Count four, emphasizing the first and third counts. This being a coordination exercise, accuracy should be insisted upon.

1. *To the side straddle, hands on hips*, 2. HOP. Bend trunk sideward right and left and extend opposite arm upward. (Plate 56.) Count four, drawling

the first and third counts. As the trunk is being bent sideward the opposite arm, palm in, is extended upward close to the head.

1. *Arms to thrust,* 2. RAISE. Thrust arms upward, swing forward and downward, then forward and upward and recover. Count four, emphasizing the first and third counts. The arms are thrust upward forcibly, then relaxed in the downward and upward swings.

1. *To the squatting position,* 2. BEND. In that position extend the right and left legs sideward alternately. (Plate 57.) Count four, emphasizing the first and third counts. The leg is fully extended, only the toes coming in contact with the ground.

From attention: Swing arms and right and left legs alternately sideward. Count two; perform moderately fast. Arms and legs are fully extended, toes depressed.

Breathing exercise: Inhale, raising arms forward-upward; exhale, lowering arms backward with a circular motion.

Plate 56.

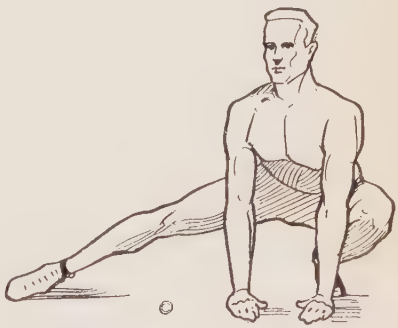

Plate 57.

Tenth Lesson. *Starting positions.*

Exercises.

1. *Arms upward, hands closer,* 2. RAISE. Circle arms inward and outward. Count four moderately fast. The arms, fully extended, are crossed above in the first circle and below in the second.

1. *Arms forward,* 2. RAISE. Rise on toes and stretch arms downward and backward. (Plate 58.) Count two, drawling the first count. As the body is being raised on the toes the arms are stretched downward and to the rear, palms turned in as far as possible, and the chest is elevated.

1. *Arms to thrust,* 2. RAISE. Repeat the neck exercises as in first lesson. (Plate 16.)

1. *Stride forward right, arms upward,* 2. STRIDE. Turn trunk to the right and lower arms, palms down to the side horizontal. Repeat wih left foot forward. (Plate 46.) Count two, drawling both counts. The trunk is stretched at the waist and turned as far as possible, while the arms fully stretched are slowly lowered to the side horizontal, knees straight and feet firmly placed.

1. *To the squatting position,* 2. BEND. Extend both legs to the side straddle and recover. (Plate 59.) Count two, emphasizing both counts. The legs are extended laterally, feet flat on the ground, knees straight.

1. *Hands on shoulders, hands closed,* 2. PLACE. Strike arms sideward. Count two, emphasizing both counts. The arms are thrown out forcibly to the side horizontal with a striking motion, knuckles down, and brought back smartly.

1. *To the side straddle, hands on shoulders,* 2. HOP. Full bend trunk forward and extend arms downward, finger tips touching the ground, and recover; then bend trunk backward and extend arms, palms down, sideward and recover.

Plate 58.

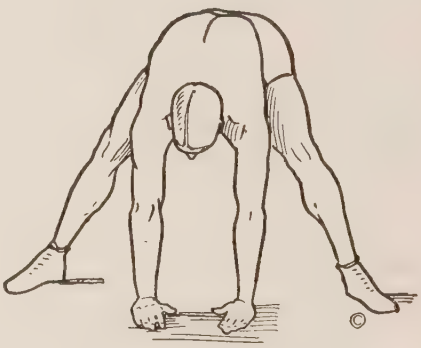

Plate 59.

Plate 60.

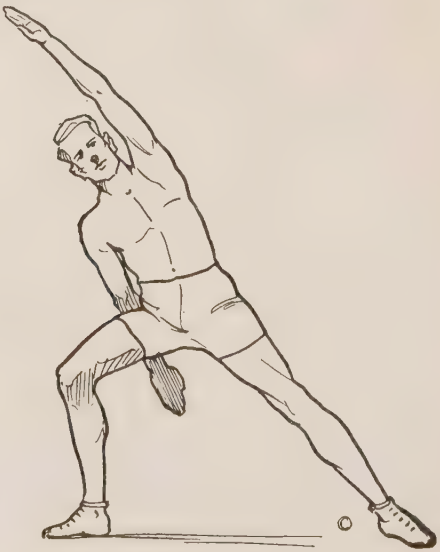

Plate 61.

Count four; the first, second, and fourth counts are snappy, the third being drawled. The first two movements are performed briskly, the third, bending the trunk backward, at the region of the shoulders, is performed slowly, the final recovery being smart.

From attention: Step position forward right and raise arms forward; lunge forward right and move arms sideward; resume the first position and recover

the position of attention. Repeat with left leg. (Plate 60.) Count eight, if the exercise is performed alternately with the legs, emphasizing the second and sixth counts.

NOTE. In the step position, the foot, with the leg extended, is moved forward about once its length and rests on the depressed toes. In the lunge the foot that is carried forward is planted firmly on the ground about three foot lengths from the stationary foot, the leg and thigh forming approximately at right angles; the other leg remains fully extended, with foot squarely on the ground. The head and trunk are erect and the chest is elevated.

1. *To the side straddle, arms sideward,* 2. HOP. Bend trunk sideward right or left, swinging opposite arm upward and the other downward, bending right or left knee. (Plate 61.) Count four, slightly drawling all the counts. In bending to the right, the left arm fully extended is raised and brought as close to the head as possible, palm in, and the right arm, palm extended, forced down as far to the rear as possible. Knees straight, feet firm, and back arched.

1. *Arms to thrust,* 2. RAISE. Move shoulders forward, upward, backward, and recover. Count four, emphasizing the first, second, and fourth, and drawling the third count.

From attention: Raise arms and extend leg forward, move arms sideward and leg backward and return in reverse order. Count eight, if performed alternately with the legs; all counts to be short and snappy. The leg is fully extended and the toes depressed.

Breathing exercise: Relax and move shoulders forward and exhale; roll the shoulders back and elevate the chest and inhale; at the command RECOVER, exhale and resume a normal attitude.

CHAPTER IV.

MASS COMMANDS.

Advantages of Mass Commands. Training men en masse through the medium of giving their own commands originated and was first introduced at one of the officers' training camps early in 1917. From the very beginning this method practically revolutionized the old method of recruit instruction, both as to the time required and the efficiency obtained. This method of instruction has nothing in common with any of the cadence drills.

As a result of giving these mass commands, diffidence and timidity and the awkwardness due to them disappear almost immediately and in their place confidence, self-reliance, assertiveness, enthusiasm, and proficiency appear.

Through this method it is possible, by constituting each individual virtually his own drill instructor, to give to large masses the benefits accruing from individual instruction. The principal advantage of this method over the old one lies in the fact that each individual is made to rely upon his own initiative and intelligence, as he must learn not only to give the commands properly but also how to perform properly the movement required by the command.

As each individual is required to give the commands as if he alone were giving them to the entire unit of which he is a member, the volume and smash of these combined voices literally impel every man to extend himself to the limit in performing the movements snappily and precisely. By giving the commands in unison with his comrades, coordination and a sense of cadence are developed from the very beginning.

In the setting-up exercises, the giving of mass commands teaches the proper cadence of an exercise, when to accentuate or emphasize a count and when to drawl it, and how, by proper intonation, to convey the idea of the manner in which a movement is to be performed. In other words, the man learns the "feel" of a movement and how, if necessary, to convey this to others. It also develops the voice.

Method of Procedure in Drills. A thorough explanation of this method of instruction should be given to the men at the beginning; particular stress being laid upon the advantages it holds for them over the old methods, in that it affords them the best possible opportunity to develop into efficient drill instructors themselves.

Each movement should be explained in detail and illustrated before it is attempted by the mass, and the necessary commands for putting the required movement into operation should be rehearsed, without performing the movement, until the mass has learned to give the commands properly. When this has been accomplished, the movement should be performed at the command of the mass.

The interval between the preparatory command and the command of execution will depend upon the number of men being drilled and their degree of proficiency; however, it is a serious error to make this interval too short.

Instructors will find it a great advantage to learn to give their preparatory commands with a rising inflection, lifting the entire command with an intonation that rouses the men and makes them eager to respond when the command of execution is given. In no other phase of the soldier's training are the good or bad qualities of an instructor reflected as accurately as they are in the giving of mass commands. Since it is only natural that the men should endeavor to

emulate their instructor, the success or failure of this instruction may be accepted as a fair criterion of an instructor's ability.

To overcome timidity and self-consciousness, which are always present with beginners, and to instill confidence, self-reliance, and assertiveness, and also to teach the men how to use their voices properly when giving commands, the instructor should frequently repeat the voice exercises. There exercises should first be done in an ordinary tone of voice and then gradually increased in volume until each man is capable of performing these exercises with the full power of his voice.

Mass Commands for the Setting-Up Exercises. In the performance of these exercises, mass commands are usually confined to the simpler exercises, those requiring short preparatory commands, commands of execution, and the commands of continuance and discontinuance.

Ordinarily, the best plan is for the instructor to describe the exercise he requires, giving such instructions as he deems necessary relative to the exercise or its cadence, and then have the mass give the necessary commands to put it into operation.

An exercise is discontinued on a signal from the instructor, raising one or both arms, at the beginning of the last repetition. On this signal the mass will count, *one,* two or *one,* two, three, HALT, as the case may be, giving the first count with a distinct rising inflection.

Example:

Instructor: 1. *Assume the thrusting position,* 2. COMMAND.
Mass: 1. *Arms to thrust,* 2. RAISE.
Instructor: 1. *Thrust arms forward, swing sideward and forward and recover, in four counts, accenting the first and third,* 2. COMMAND.
Mass: 1. *In cadence,* 2. EXERCISE, *one,* two, *three,* four.
Instructor: *Signals for discontinuation.*
Mass: *One,* two, three, HALT.

In all of these exercises, in order to insure a prompt and uniform response, the mass will use the command *In cadence* as a preparatory command.

Mass commands *must not be required in the trunk* (except when the trunk movements are relaxed ones), the *neck or breathing exercises,* nor in any other exercises in which they will interfere with proper breathing.

Mass commands for the starting positions.

In all arm movements the command of execution should be indicative of the movement required; thus movements in the same plane are performed at the command MOVE; movements to a higher plane at the command RAISE; to a lower one at the command LOWER; and those movements where the hands come in contact with the body are performed at the command PLACE.

Instructor: 1. *Assume the front horizontal position,* 2. COMMAND.
Mass: 1. *Arms forward,* 2. RAISE.
Instructor: 1. *Resume the position of attention,* 2. COMMAND.
Mass: 1. *Arms,* 2. DOWN.
Instructor: 1. *Assume the side horizontal position,* 2. COMMAND.
Mass: 1. *Arms sideward,* 2. RAISE.
Instructor: 1. *Assume the perpendicular position, with a forward (or a lateral) motion,* 2. COMMAND.
Mass: 1. *Arms upward, with a forward (or lateral) motion,* 2. RAISE.
Instructor: 1. *Assume the thrusting position,* 2. COMMAND.
Mass: 1. *Arms to thrust,* 2. RAISE.
Instructor: 1. *Assume the hands on hips position,* 2. COMMAND.
Mass: 1. *Hands on hips,* 2. PLACE.
Instructor: 1. *Assume the hands on shoulders position,* 2. COMMAND.
Mass: 1. *Hands on shoulders,* 2. PLACE.

Instructor: 1. *Assume the fingers laced position,* 2. COMMAND.
Mass: 1. *Fingers in rear of head,* 2. LACE.
Instructor: 1. *Assume the various starting positions in sequence,* 2. COMMAND.
Mass: 1. *Arms forward,* 2. RAISE, 3. *Sideward,* 4. *MOVE,* 5. *Upward,* 6. RAISE, 7. *Fingers in rear of head,* 8. LACE, 9. *Hands on shoulders,* 10. PLACE, 11. *Hands on hips,* 12. PLACE, 13. *Arms to thrust,* 14. MOVE, 15. *Arms,* 16. DOWN.

Mass commands for the setting-up exercises. The following examples will suffice to familiarize instructors with the method of procedure to be followed in applying the mass commands to the setting-up exercises. The method of discontinuance and the return to the position of attention does not vary and is applicable in all cases. It is given only in the first exercise below.

Instructor: 1. *Assume the front horizontal position,* 2. COMMAND.
Mass: 1. *Arms forward,* 2. RAISE.
Instructor: 1. *Swing arms sideward and forward, in two counts,* 2. COMMAND.
Mass: 1. *In cadence,* 2. EXERCISE.
Instructor: 1. *Signals for discontinuation.*
Mass: 1. *One,* 2. HALT.
Instructor: 1. *Resume attention,* 2. COMMAND.
Mass: 1. *Arms,* 2. DOWN.
Instructor: 1. *Assume hands on shoulders position,* 2. COMMAND.
Mass: 1. *Hands on shoulders,* 2. PLACE.
Instructor: 1. *Rise on toes and extend arms upward, in two counts, accentings the first,* 2. COMMAND.
Mass: 1. *In cadence,* 2. EXERCISE.
Discontinue and resume attention as in the first exercise.
Instructor: 1. *Assume the thrusting position,* 2. COMMAND.
Mass: 1. *Arms to thrust,* 2. RAISE.
Instructor: 1. *Full bend knees and thrust arms forward, in two counts, accenting the second,* 2. COMMAND.
Mass: 1. *In cadence,* 2. EXERCISE.
Discontinue as before.
Instructor: 1. *Assume hands on shoulders position,* 2. COMMAND.
Mass: 1. *Hands on shoulders,* 2. PLACE.
Instructor: 1. *Extend arms forward, swing sideward and forward and recover, in four counts, accenting the first and last counts,* 2. COMMAND.
Mass: 1. *In cadence,* 2. EXERCISE.
Discontinue as before.
Instructor: 1. *Assume thrusting position,* 2. COMMAND.
Mass: 1. *Arms to thrust,* 2. RAISE.
Instructor: 1. *Move shoulders forward, upward, backward, and recover, in four counts, drawling out all but the last count,* 2. COMMAND.
Mass: 1. *In cadence,* 2. EXERCISE.
Discontinue as before.
Instructor: 1. *Bend to the squatting position, extend legs backward to the leaning rest, resume the squatting position, and recover the position of attention, in four counts, accenting the first and last,* 2. COMMAND.
Mass: 1. *In cadence,* 2. EXERCISE.
Discontinue as before.
Instructor: 1. *Assume the side straddle position, hands on hips,* 2. COMMAND.
Mass: 1. *To the side straddle, hands on hips,* 2. HOP.
Instructor: 1. *Full bend trunk forward, relaxed, and extend arms downward, recover starting position, rise on toes and stretch arms upward*

and recover starting position, in four counts, performing the first two and the fourth movements snappily and the third slowly, 2. COMMAND.

Mass: 1. *In cadence,* 2. EXERCISE.

In this exercise the position of attention is resumed at the following commands:

Instructor: 1. *Resume the position of attention,* 2. COMMAND.

Mass: 1. *To the position of attention,* 2. HOP, one, *two.*

Instructor: 1. *Assume the squatting position, arms sideward, palms up,* 2. COMMAND.

Mass: 1. *To the squatting position, arms sideward, palms up,* 2. BEND.

Instructor: 1. *Rock on knees and circumduct arms backward, in two counts,* 2. COMMAND.

Mass: 1. *In cadence,* 2. EXERCISE.

To resume the position of attention at the instructor's command, the mass commands: 1. *To the position of attention,* 2. RISE.

Marching.

General Rules. All steps and marchings executed from the halt, except right step, begin with the left foot.

The length of the full step in quick time is 30 inches, measured from heel to heel, and the cadence is at the rate of 128 steps per minute.

The length of the full step in double time is 36 inches; the cadence at the rate of 180 steps per minute.

The instructor, when necessary, indicates the cadence of the step by calling, one, two, three, four, the instant the left and right foot, respectively, should be planted.

In marching, the head and trunk should remain immobile, but without stiffness, head erect, body well stretched from the waist, chest arched, chin up, and arms swinging naturally about 6 inches to the front and about 3 inches to the rear of the body.

In double timing the forearms are raised to a horizontal position along the waist line, fingers closed, knuckles out, the arms swinging naturally. The step is an easy run with the weight of the body forward and the muscles relaxed.

In performing exercises while marching at quick time and double time, the normal cadence is used except when the nature of the exercise necessitates a different cadence.

Leg and Foot Exercises on the March. The men should march in a single file at proved intervals. The command that causes and discontinues the performance should be given as the left foot strikes the ground.

On the march, to discontinue the exercise, command: 1. *Quick time,* 2. MARCH, instead of HALT, as when standing.

The following leg and foot exercises are executed at the command MARCH, the execution always beginning with the left leg or foot:

1. *On toes,* 2. MARCH.
1. *On heels,* 2. MARCH.
1. *On toes with knees straight,* 2. MARCH.
1. *Swing extended leg forward, ankle high;* 2. MARCH.
1. *Swing extended leg forward, knee high,* 2. MARCH.
1. *Swing extended leg forward, waist high,* 2. MARCH.
1. *Raise heels,* 2. MARCH.
1. *Raise knees, chest high,* 2. MARCH.
1. *Circle extended leg forward, knee high,* 2. MARCH.
1. *Swing extended leg backward,* 2. MARCH.
1. *Swing extended leg sideward,* 2. MARCH.
1. *Raise knee and extend leg forward,* 2. MARCH, in two counts.

1. *Cross step,* 2. MARCH. As the legs move forward they are crossed. The body does not turn.

1. *Continuous change step,* 2. MARCH. The left foot is advanced and planted; the toes of the right are than advanced near the heel of the left in the halting step; the left foot is then advanced about half a step (15 inches) and the right foot is advanced with the full step and planted; the toes of the left foot are then brought up to the heel of the right foot, which advances a half step, when the left foot is advanced a full step, and so on.

1. *Knee-rocking step,* 2. MARCH. As each foot is planted it is accompanied by a slight bending and straightening of the corresponding knee; the other leg remaining fully extended, heel raised.

1. *Lunging step,* 2. MARCH. The length of the step is 45 inches, the knee in advance being well bent; the other leg remaining fully extended, heel raised; trunk erect.

1. *Cross step, raising knees,* 2. MARCH. Execute the cross step and raise the knees. The cross step may also be executed in combination with the swings of the extended leg.

1. *Continuous change step hop,* 2. MARCH. Execute the ordinary change step, hopping with the change.

1. *Forward gallop hop,* 2. MARCH. The left foot is advanced and planted, the right foot is brought up in rear as in the halting step; this is done four times in succession. The same is done four times with the right foot in advance, and so on.

1. *Sideward gallop hop,* 2. MARCH. The left foot is advanced, body turning to the right; four hops are then executed sideward on the left foot, followed by the right; at the fourth hop the body is turned to the left about and four hops executed sideward on the right foot followed by the left, and so on.

1. *Hands on hips,* 2. PLACE, 3. *Bend trunk forward and extend left (or right) arm downward,* 4. MARCH. The left (right) knee is bent and the finger tips are brought in contact with the ground. A full recovery should be insisted upon.

Same exercise, extending both arms downward.

1. *Hands on shoulders,* 2. PLACE, 3. *Extend arms upward and rise on right (left) toe,* 4. MARCH.

1. *Hands on hips,* 2. PLACE, 3. *Swing extended legs forward, breast high, and extend arms on same side forward,* 4. MARCH. The foot and hand come in contact.

1. *To the squatting position, hands on hips,* 2. BEND, 3. *In that position, forward,* 4. MARCH.

1. *To the squatting position, hands on the ground,* 2. BEND, 3. *"Bear Walk,"* 4. MARCH. The hand and foot on the same side move forward simultaneously.

Same moving the opposite foot and hand forward simultaneously.

1. *To the squatting position, hands on the ground,* 2. BEND, 3. *"Kangaroo hop" forward,* 4. MARCH. The hands are moved forward, followed by the feet, in a series of short hops.

Setting-up Exercises While Marching. All the arm and shoulder exercises and some of the trunk exercises described in the setting-up exercises may be performed while marching precisely as they are done while standing, except that every initial movement should begin on the left foot.

Exercises in Double Timing. For the purpose of conditioning and training double timing may be carried on as a running exercise; that is, it is executed on the toes and balls of the feet with heels raised off the ground. The men will take up this method of double timing at the command: 1. *On toes double time,* 2. MARCH, and continue until the command: 1. *Double time,* 2. MARCH is given, when the ordinary double-time is resumed.

While on the double, the instructor may vary the position of the arms by commanding:

1. *Arms forward,* 2. RAISE.
1. *Arms sideward,* 2. RAISE.
1. *Arms upward,* 2. RAISE.
1. *Hands on hips,* 2. PLACE.
1. *Hands on shoulders,* 2. PLACE.

He may also combine the following leg exercises with the double time:

1. *Cross step,* 2. MARCH.
1. *Raise knees,* 2. MARCH.
1. *Raise heels,* 2. MARCH.
1. *Swing legs forward,* 2. MARCH.
1. *Swing legs backward,* 2. MARCH.

To discontinue these exercises, but still continue the double timing, command:

1. *Double time,* 2. MARCH.

CHAPTER V.

CORRECTIVE EXERCISES.

Cooperation. To insure success, instructors must endeavor to enlist the cooperation of the men they are treating, for without it little will be accomplished in aggravated cases. Only the most common physical defects and corresponding corrective exercises are noted here.

Minor Defects Remedied by Regular Training. Minor physical defects can be readily overcome by the ordinary physical drills if such drills are harmonious; that is, if all corresponding parts of the body are employed equally. This is based upon the theory that if an equal amount of exertion is required of all parts of the body the weaker ones will increase in strength much more rapidly than the stronger ones, thus constantly diminishing the difference between the two until the difference ceases to be marked or material.

This is particularly true in the training of younger persons. When defects are of long standing, due to faulty posture, occupation, or the result of previous illness, special instruction may be necessary, but this must not interfere with the man's participation in the regular physical drills unless it is found that he is unable to participate in them; such cases should be treated specially.

Dropping Head. Exercise the muscles of the neck by bending, turning, and circling the head, with muscles moderately tense. Cultivate the habit of keeping the chin elevated and eyes directed upward.

Round or Stooped Shoulders. Stretch arms sideward from the front to the side horizontal, turning palms up as the arms move sideward; pause in side horizontal, stretching the arms well out in the plane of the shoulders. Inhale and elevate the chest with the sideward movement; exhale and relax with the forward movement.

Swing arms sideward from the front to the side horizontal, palms down, with muscles relaxed.

Circle arms upward and backward slowly from the front horizontal and back to that position, with muscles moderately tense. Inhale with the upward and exhale with the backward-downward movement.

Move shoulders forward, with muscles relaxed, then raise them in that position; force them back in that elevated position slowly, with muscles tense, until they are in the proper plane, inhaling at the same time; pause and then lower and relax to the normal position, exhaling at the same time.

Weak Back. Bend trunk forward, with back arched. (Plate 19.)

Bend trunk forward, with back arched, stretching arms sideward from the front horizontal. (Plate 51.)

Bend trunk sideward, without, and with arm movements. (Plates 21, 28, and 48.)

Lie on floor, face down, and raise head and shoulders or the extended leg or legs backward-upward.

Weak Abdominal Muscles. Bend trunk backward, without, and with arm stretchings. (Plates 22, 34 and 52.)

Turn trunk right and left. (Plates 17, 25 and 31.)

Lie on floor, face up, raise extended leg or legs to the perpendicular; raise head and shoulders from the floor, or raise trunk to sitting position.

To Increase Depth and Width of Chest. Arm stretchings upward from front horizontal, muscles moderately tense, elevating the chest and inflating the lungs.

Arm stretchings sideward and then upward from front horizontal, elevating and inhaling as above.

Stretch arms upward and downward laterally from attention, allowing arms, palms to the front, to cross overhead.

Circle arms upward and backward from the front horizontal, muscles moderately tense.

Flat Feet. The following exercises have been recommended by the Medical Corps for the purpose of developing the muscles of the feet and legs, improving foot disabilities and preparing normal feet for more strenuous duty. They should be included in the setting-up exercises, and made obligatory for those suffering from flat-footedness and for those predisposed to that condition.

Stand with feet parallel and rise on the outer borders of the feet, without twisting the legs or bending the knees.

With feet parallel, walk on outer borders.

Stand with feet parallel, or slightly toed-in, and circumduct hips outward (twist legs), keeping knees straight and the great toes in contact with the ground, heels raised, pressing ankle joints out.

Stand with feet parallel; rise on toes; descend, letting only the outer borders of the feet touch the ground; flatten the feet on the ground.

With feet parallel, curl toes under feet and relax.

Cultivate the habit of standing and walking with feet parallel, and extending knees fully.

RIFLE MARKSMANSHIP

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RIFLE MARKSMANSHIP

CHAPTER I.

INTRODUCTION.

Object of Marksmanship Instruction.

Military rifle training is divided into two parts; "Rifle Marksmanship," in which the men are taught, individually, to be good shots, and "Musketry," in which they learn to act as a team, under squad and leaders, in movement and the delivery of fire.

Rifle Marksmanship and Musketry are thus inseparably related. Neither alone is suffieient. In all training upon the rifle range it must be borne in mind that the ultimate object is the training of a team whose accurate fire can be controlled, directed and distributed by a leader. This course deals only with Rifle Marksmanship.

The value of knowing how to shoot was proved in the World War. General Pershing cabled a number of times, "Teach the men to shoot." Later developments showed that his opinion as to the value of Marksmanship was fully vindicated. The rifle is still a principal weapon in war. No matter how much artillery, aviation, chemical warfare and other services an army may have, its principal reliance in fire power must be upon small arms weapons, particularly the rifle. The deadly accuracy of American riflemen was the chief contributing cause of the victory in the Meuse-Argonne battle in the World War. The superior mobility of cavalry permits rapid movement and hence offers unusual opportunities to place rifle and other small arms fire upon the enemy at a great disadvantage to the latter. However, unless the trooper has been properly trained to shoot, his fire will not be effective. It is therefore imperative that the soldier should learn the use of his rifle and learn it so well that he will be able to teach others, for the students of today will be the instructors and leaders of tomorrow.

Method of Instruction.

To shoot a rifle properly is a very simple matter. It is much easier, for instance, than learning to walk or speak, as all of us have to do. It does not require any special talent. It does not even require any great amount of practise —many men learn to shoot well in a few days. But it is absolutely vital that the practise be along the right lines. Any man who has passed the examination for admission into the military service has the necessary physical and mental equipment to become a good shot. If he does not become one it is because he is not properly taught or has failed to give proper attention to his teaching.

It is easy to learn to shoot provided one is properly instructed. But mere "practise," consisting in shooting away a lot of ammunition without proper instruction, does more harm than good. If left to himself a "green" man is practically certain to do it wrongly. He jerks the trigger, deranging his aim, and closes his eyes as he does it, so that he has no idea where the gun was aimed when it went off. Consequently men cannot be taught to shoot by telling them what to do and then placing them alone to practise. Such procedure merely develops and confirms bad habits, making it extremely difficult for anyone later to teach the man to shoot even with the proper methods. But if he has been thoroughly instructed and drilled in the mechanism of correct shooting, and is carefully and properly coached whenever he is in a firing position, correct shooting habits rapidly become fixed and replace the incorrect habits he would have de-

veloped if left alone. It is much easier to make an excellent shot out of a man who has never fired a rifle than it is to correct the bad habits of a man who has done a good deal of shooting under improper supervision.

By following carefully the methods of training herein described, many organizations have "qualified" as marksman or better, well over 80 per cent of their strength in their first season of firing the rifle. The system has been thoroughly tested and proved. In the regular army, it is not an uncommon occurrence for a rifle company or cavalry troop to qualify 100 per cent of its men, including recruits. An organization which fails to qualify at least 80 per cent of its personnel is regarded as deficient.

Sequence of Instruction.

The army system of rifle training includes two phases, "Preparatory training" and "Range firing." Contrary perhaps to popular impression, one does not learn to shoot by shooting on the range. Good shots are made off the range. The "system" by which we teach men to shoot is covered in the preparatory exercises. The work on the range is chiefly a test of how well the man has learned the system. On the range he finds that he really can hit the bull's-eye by consistently doing all the things he has been taught. This stimulates his interest and develops his self-confidence. On the range also he learns to do everything for himself and he acquires a practical acquaintance with wind, light, "mirage," and other conditions which affect his shooting. But before going on the range he should have been taught everything necessary. The preparatory exercises are the training and range firing the test.

The Five Steps.

There are five distinct steps in the preparatory instruction:

Sighting and aiming exercises.

Position exercises.

Trigger squeeze exercise.

Rapid fire exercises.

Examination of men before starting range practice.

In addition, the following subjects will be taken up during the preparatory period: Nomenclature, safety precautions, care of rifle, effect of wind, use of score book, and sight changing. These subjects do not pertain particularly to any one step, but will be included in an examination before range practice begins.

These five steps are in logical sequence and this sequence is followed in this course. Each step must be thoroughly understood and diligently practiced before progress is made to the next succeeding one. Each period of instruction starts with a lecture by the instructor to the assembled unit or class. This talk is accompanied by a demonstration of the work being taken up. The instructor also shows how the squad leader organizes the instruction in the squad.

Each man must understand every point and must be able to explain it in his own words. Instruction is carried on throughout the entire period of training by the "Coach and pupil method." Under this method, the men receiving instruction are grouped in pairs and take turns watching and coaching each other. The man undergoing instruction is called the pupil. The man giving instruction is called the coach. When the men of a pair change places the coach becomes the pupil and the pupil becomes the coach. The squad leaders and other instructors supervise and prompt the men who are acting as coaches.

The coach takes his place beside the man who is undergoing instruction. He stands when the pupil is standing and reclines beside him when he is prone. Too often, when actual firing is in progress the coach watches the target only. This is a waste of time. Where the shots strike is of interest only as showing that mistakes are being made. The coach's duty is to see what mistakes are being made, to convince the pupil that he is making a certain mistake, and to assist

Name	Sighting bar	Sighting and aiming with rifle	Triangle exercises	Blackening sights	Use of gun sling	Taking up slack	Holding the breath	Positions	Assuming positions rapidly	Care and cleaning of the rifle	Trigger squeeze	Calling the shot	Bolt operation	Rapid fire	Sight changes	Effect of light and wind	Use of score book	Value as a coach	Final examination	Gallery practice	Pads			

METHOD OF MARKING.

Fair: [X] Good: [X] Very good: [X] Excellent: [X] Excellent: and has instructional ability: [X]

Individual Record of Progress in Preparatory Instruction.

him in correcting it. To do this he must watch his pupil closely. Mistakes in position, sight setting and trigger squeeze are easily detected by watching the man.

Rifle shooting is a simple art, but it is very precise. Very slight variations from exactness, and apparently insignificant bad habits result in large errors by

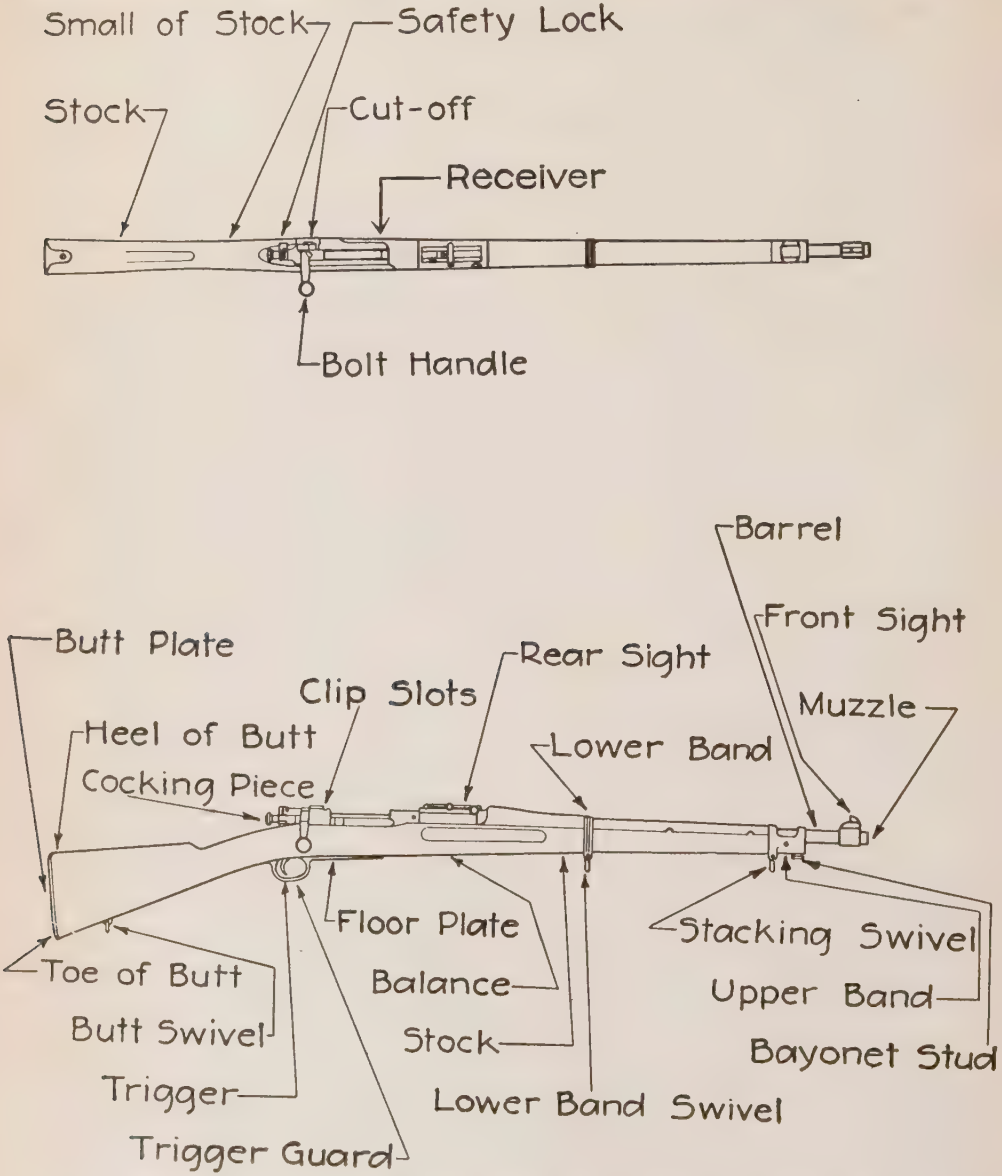


Plate 1. Nomenclature of United States Rifle, Caliber .30, Model 1903.

the time the bullet reaches the target, or its vicinity. Every detail connected with the firing of a shot must be carried out with hair-splitting accuracy. A very little carelessness or inattention will entirely defeat the purpose in view.

Record of Progress.

In order that there may be a record of the progress of each man the squad leader and platoon leader should each fill out the blank form shown on the

preceding page. The pupil should be carefully examined in each item of the preparatory training as shown on the form, and must attain a satisfactory rating in every one before being permitted to fire. By means of this form the instructors keep in close touch with the progress of the training.

NOMENCLATURE, CARE AND CLEANING OF THE RIFLE.

Nomenclature.

The word nomenclature means the vocabulary of names or technical terms appropriate to any particular device. In this case the device is the rifle. It is not necessary to know every part of the rifle in order to fire it. A knowledge of the names of the parts habitually referred to in drill and in rifle marksmanship is all that is required. The important parts are shown in the accompanying plates. Each man should become familiar with the following parts and should understand the functions of each: Stock, butt, breech, chamber, hand guard, upper and lower bands, barrel, muzzle, bore, front sight, rear sight, sight leaf, leaf slide, sight graduations, wind gauge, windage screw, cut-off, extractor,

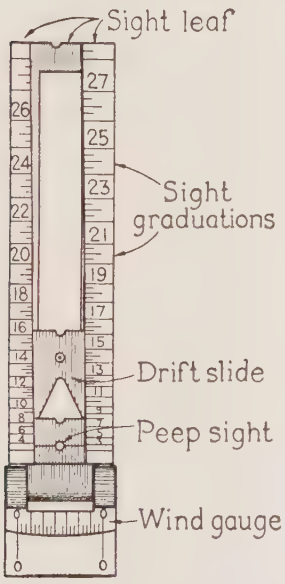


Plate 2. Sight Leaf.

Plate 3. Cartridge, Caliber .30

ejector, cocking piece, main spring, firing pin, striker, cocking cams, safety lock, trigger, trigger guard, guard screws, receiver, magazine, floor plate, magazine spring, and follower.

Name. The rifle now in use is the United States Rifle, Caliber 30, Model 1903. It is commonly called the "Springfield," because it was formerly manufactured only at the Springfield Arsenal.

Weight. 8.69 pounds without the bayonet, which weighs one pound.

Caliber. .30 (thirty-hundredths of an inch), the interior diameter of barrel measured between the lands, or raised parts of the rifling.

Lands. The four raised spaces in the bore between the grooves. These lands grip the bullet as it passes through the bore, and rotate it about its longer aixs. This rotation serves to prevent tumbling by keeping the nose of the bullet always

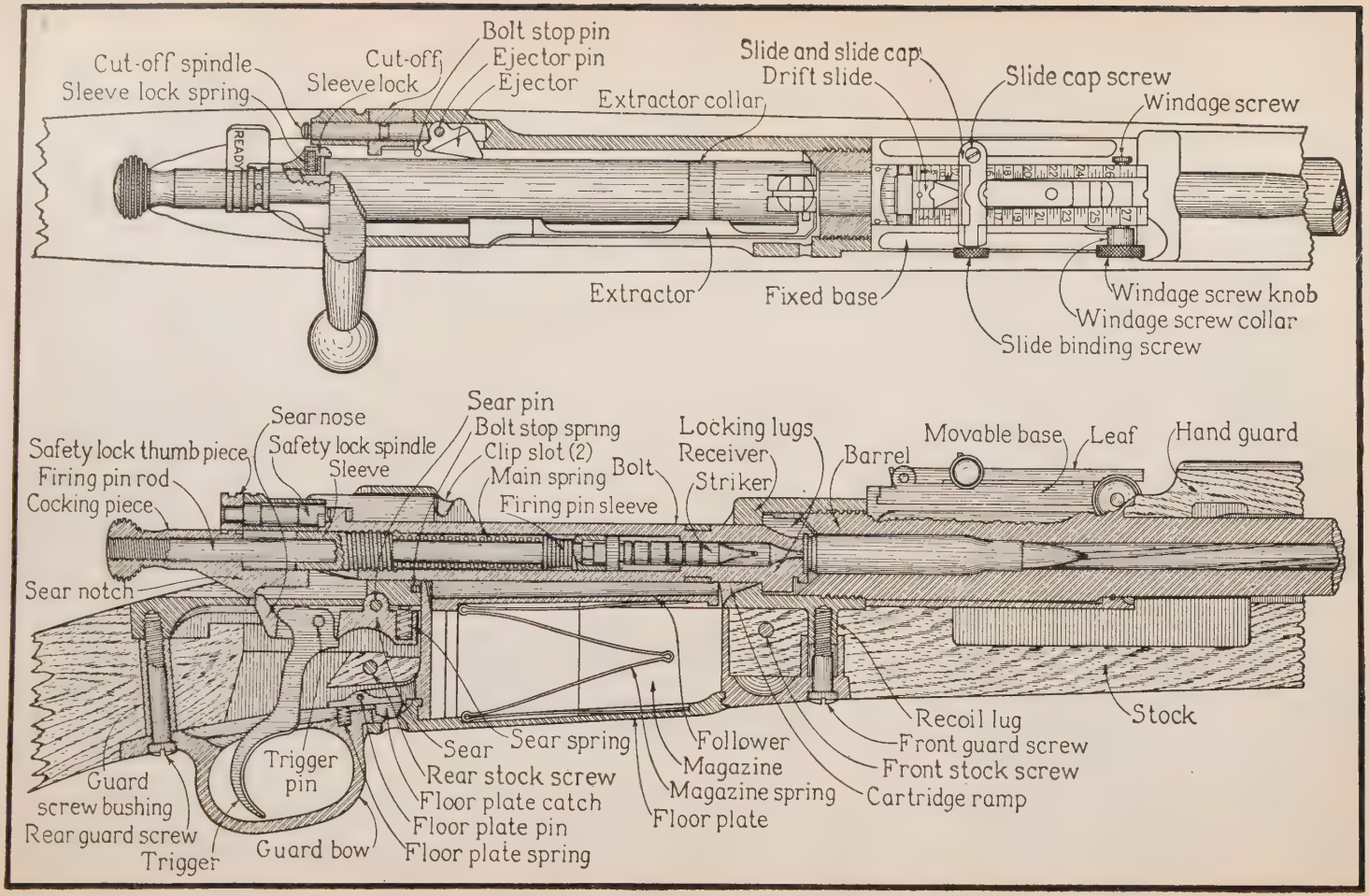


Plate 4. Detailed Nomenclature, Operating Parts of the Rifle.

to the front, thereby lessening air resistance, affording a greater range and keeping the bullet accurately on its course. This rotation causes the bullet to "drift" to the right as it passes through the air, but the drift at any range is compensated by the rear sight, the inner side of which is cut diagonally.

Twist. The spiral formed by the grooves in the barrel. The twist is to the right and uniform, one turn in 10 inches.

Grooves. The four spiral channels between the lands.

Rear Sight Leaf. It is graduated from 100 to 2850 yards. The range is shown by figures representing hundreds of yards. The odd ranges are on the right and the even ranges are on the left. The lines which correspond to the hundreds of yards are immediately *below* the appropriate figures and extend across the branch of the sight leaf; the smaller divisions go but part way across.

The Cartridge. This consists of a brass case and a bullet, which has a core of lead and tin composition covered with a jacket of cupro-nickel. The bullet is pointed so as to offer less resistance to the air. The case, powder charge, primer and bullet of the modern rifle are all in one piece, known as "fixed ammunition."

Maximum Range. 3450 yards with the muzzle elevated at 30 degrees.

Time of Flight. 26 seconds.

Velocity. 2700 feet per second.

Penetration of the bullet at 200 yards:

Solid oak	32.05 inches
Loose, dry sand	8.1 "
Brick wall	2.2 "
Steel plate	0.15 "

The above data apply to the Model 1906 ball cartridge and the Model 1918 tracer. A new type of ammunition has been adopted, known as the MI (boat-tailed) ball cartridge, and the Model 1928 tracer. The new ammunition has

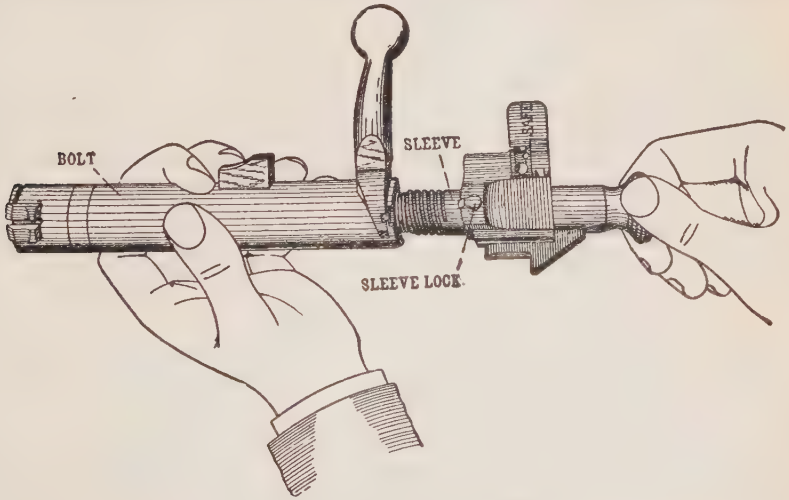


Plate 5. Dismounting Bolt.

greater muzzle energy and a greater maximum range (approximately 6000 yards) then the Model 1906 ammunition.

Care of the Rifle.

The rifle is a piece of fine mechanism. It must be kept clean, free from rust, and well lubricated if it is to do accurate shooting and remain in serviceable condition. The cleaning and care of the rifle is an important duty of all soldiers

armed with this weapon and a subject which must receive the consideration of all officers. Experience has shown that the majority of rifles become unserviceable, not through shooting but through the lack of proper care.

At all inspections, unless otherwise explicitly ordered, the rifles should be clean, the bore of the rifle protected with a thin film of grease (cosmic), the mechanism of the rifle lubricated with thin oil (sperm oil), and the oiler filled with oil. When the inspector wishes to inspect the rifles minutely, he may order that all grease and oil be removed from them, but in such cases the grease and oil should be applied again immediately after the inspection.

The soldier is not allowed to take his rifle entirely apart. For purposes of cleaning the following parts may be removed: Front sight cover; floor plate and follower; gun sling; oiler and thong case; and the bolt, which may be taken apart.

To remove the bolt: Cock the piece and turn the safety lock to the vertical position. Turn the cut-off to the horizontal position and remove the bolt from the receiver. To remove the bolt sleeve: Press the sleeve lock in order to unlock the sleeve from the bolt, and unscrew by turning the bolt sleeve to the left. It is seldom necessary further to dismount the bolt. (See Plate 5.)

Cleaning in Garrison.

This includes the ordinary care of the rifle to preserve its condition and appearance in garrisons, posts, and camps during those periods when no firing is done.

The barrack cleaning rod only should be used. The use of the thong and brush should be confined to occasions when the barrack cleaning rod is not available. Rifle barrels should always be cleaned from the breech, the bolt being removed for this purpose.

To clean the rifle, rub it with a rag which has been slightly oiled or greased and then clean with a perfectly dry one. Swab the bore with an oily flannel patch and then with a perfectly dry one. Dust out all screw heads and crevices with a small clean brush. Wipe the stock and sling with an oily rag and then with a perfectly dry one.

Immediately after cleaning, to protect the rifle, swab the bore thoroughly with a flannel patch saturated with grease (cosmic), wipe over all metal parts, including the bolt mechanism and magazine, with an oily rag, apply a few drops of light oil (sperm oil) to all cams and working surfaces of the mechanism, place a teaspoonful of linseed oil in the palm of the hand, and polish the stock well.

Damp air, and particularly sweaty hands, promote rust. The rifle should be cleaned and protected after every drill. Special precautions are necessary when the rifles have been used on rainy days and after tours of guard duty.

Cleaning after Firing.

When a rifle has been fired, the bore must be thoroughly cleaned not later than the evening of the day on which it is fired. Thereafter it must be wiped out and regreased each day for the next three succeeding days at least.

Cleaning the bore of a rifle after firing involves three operations:

1. Removing the powder residue in the bore with water, preferably warm.
2. Drying the bore thoroughly of the liquid used to remove the powder residue, by running a number of dry cleaning patches through the bore.
3. Protecting the bore against rust with a coating of grease, by running a cleaning patch saturated with grease through the bore two or more times.

Metal fouling (small flakes of bright metal seen in the bore after it has been thoroughly cleansed) will be removed only by an instructor, non-commissioned officer, or mechanic. Metal fouling should be removed as soon as discovered. Rifles should be inspected for metal fouling at the end of any period of firing.

Preparing for Storage or Shipment.

In preparing arms for storage or shipment they should be cleaned with particular care, using the metal fouling solution referred to above. Care should be taken, insured by careful inspection on succeeding day or days, that the cleaning is properly done and all traces of ammonia solution removed. The bore is then ready to be coated with a heavy oil, such as cosmic. At ordinary temperatures cosmic is not fluid. In order, therefore, to insure that every part of the surface is coated with a film of oil, the cosmic should be warmed. Apply the cosmic first with a brush; then with the breech plugged, fill the barrel to the muzzle, pour out the surplus, remove the plug, and allow to drain. It is believed that more rifles are ruined by improper preparation for storage than from any other cause. If the bore is not clean when oiled—that is, if powder fouling is present or rust has started—a half inch of cosmic on the outside will not stop its action, and the barrel will be ruined. Remember that the surface must be perfectly clean before the heavy oil is applied. If the instructions as given above are carefully followed, arms may be stored for years without harm.

Rules for Care of the Rifle on the Range.

On being called up to fire run a fresh cloth patch through the bore.

Always clean at the end of each day's shooting. A rifle that has been fired should never be left overnight without cleaning.

Never fire a rifle with any dust, dirt, mud, or snow in the bore.

Never leave a patch, oily rag, cork, or other obstruction in the bore or anything sticking into the muzzle.

Never allow the muzzle to touch the ground.

CHAPTER II.

FIRST STEP, SIGHTING AND AIMING.

First Sighting and Aiming Exercise.

The soldier must first learn what a correct sight alignment looks like and also how to aim at a bull's eye. For the first exercise in this step two complete sighting bars are necessary for each squad. The front sight, the rear sight, the eyepiece and the top of the bar should be painted black.

The Sighting Bar. The squad leader or instructor shows a sighting bar to his squad or group and points out the front and rear sights, the eyepiece, and the removable target. He explains the use of the sighting bar as follows: The front and rear sights on the sighting bar represent enlarged rifle sights; the sighting bar is used in the first sighting exercise, because with it small errors can be easily seen and explained to the pupil; the eyepiece requires the pupil to place his eye in such position that he sees the sights in exactly the same alignment as seen by the coach; there is no eyepiece on the rifle, but the pupil learns by

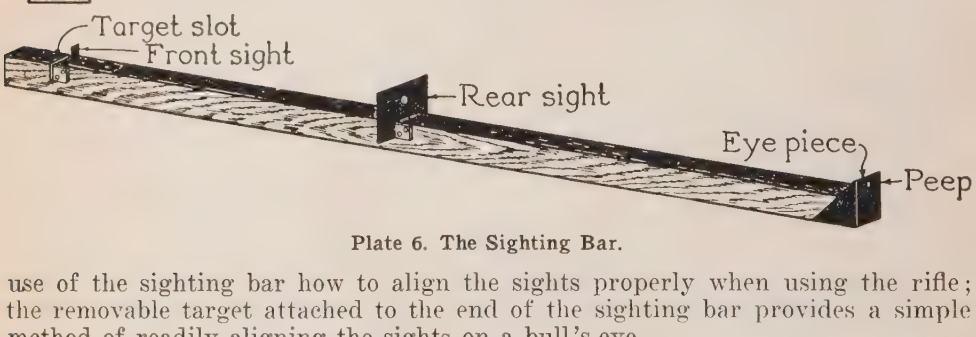


Plate 6. The Sighting Bar.

use of the sighting bar how to align the sights properly when using the rifle; the removable target attached to the end of the sighting bar provides a simple method of readily aligning the sights on a bull's-eye.

Sighting. The instructor explains the open and peep sight to the assembled class, showing each man the illustrations of a correct sight alignment (see Figs. A, B, D and E, Plate 7), using the peep sight, which is the one used in range practice, he adjusts the sights of the sighting bar, with the target removed, so as to illustrate a correct alignment of the sights. He has each man of the group look through the eyepiece at the sight adjustment. He then adjusts the sights of the sighting bar with various small errors in sight alignment, and has each man of the group endeavor to detect the error.

Aiming. By means of a sketch (see Plate 7) the instructor explains to each man the proper alignment for the open and peep sights. *There is only one correct sight* and that is shown in Figures C and F, Plate 7. The front sight is aligned with the center of its top *exactly* in the center of the peep or open sight, and just touching the bottom of the bull's-eye or other mark aimed at. The instructor explains that *the eye should be focused on the bull's-eye in aiming*, and he insures by questioning the men, that all understand what is meant by focusing on the bull's-eye. The instructor then adjusts the sights of the sighting bar and the removable target so as to illustrate a correct aim, and has each man of the group look through the eyepiece to observe this correct aim. Finally,

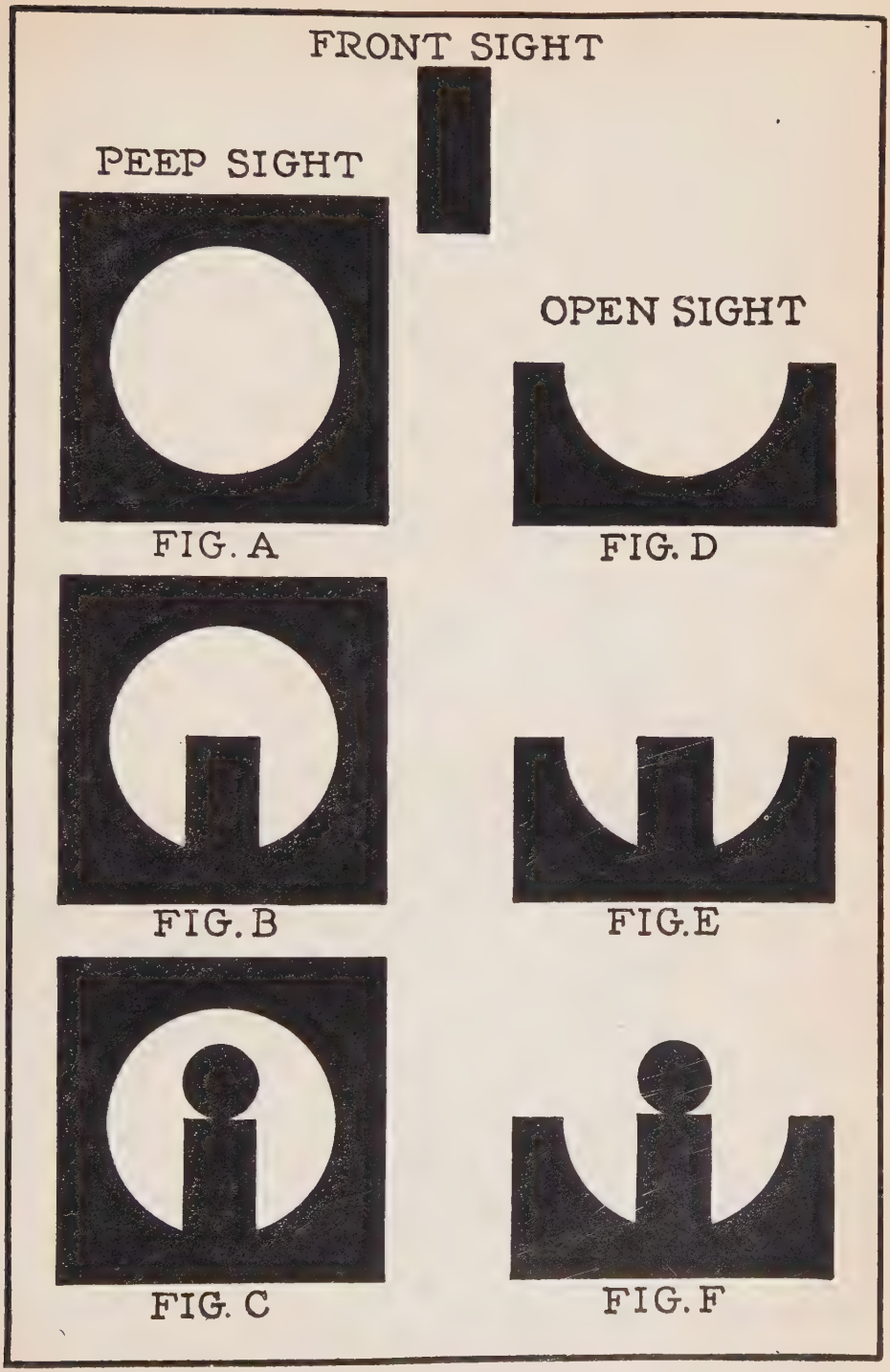


Plate 7. Diagrams of Correct Sight Alignments.

he adjusts the sights and the removable target so as to illustrate various small errors and has each man in the group attempt to detect the error. Unless a soldier can discover and correct *very small errors* in sighting he can never become a good shot.

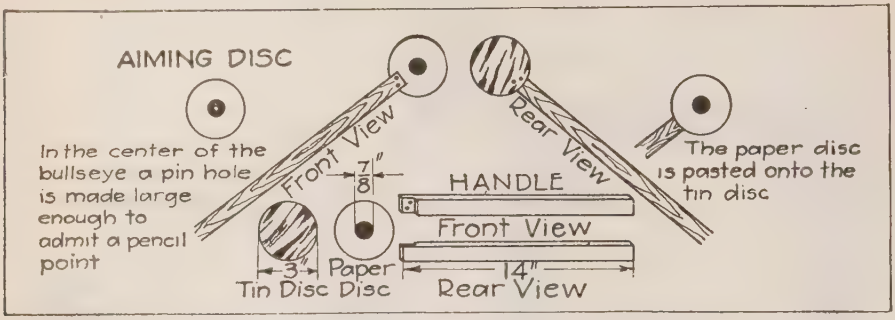


Plate 8. Aiming Discs.

This exercise having been completed by the squad leader or other instructor, each squad is divided into two groups and the exercise is repeated. The squad leader retains charge of one group and designates some member of the squad to

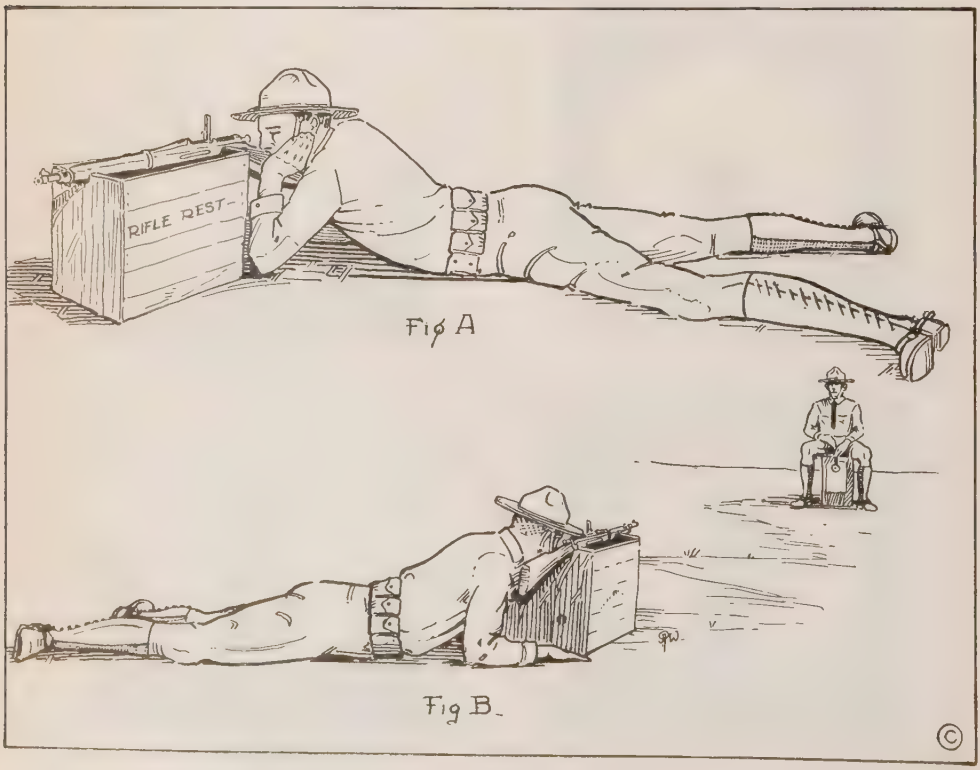


Plate 9. Sighting and Aiming Exercise; Shot Groups at 50 Feet.

be in charge of the other group. Each student must go through every phase of the exercise with exactness, and squad leaders must start keeping the blank form the very first day of the preparatory exercises.

Second Sighting and Aiming Exercise.

As soon as men are considered proficient in the first sighting and aiming exercise, the squad leader or other instructor puts the assembled squad through the second sighting and aiming exercise. The squad is then divided into two groups and men instruct each other by the coach and pupil method.

In each group of four, one man is pupil, one is coach, and one moves the aiming disc in front of a small box which is placed 50 feet away.

A rifle with sights blackened is placed in a rifle rest and pointed at a blank sheet of paper which is mounted on the box. (Plate 9.) Without touching rifle

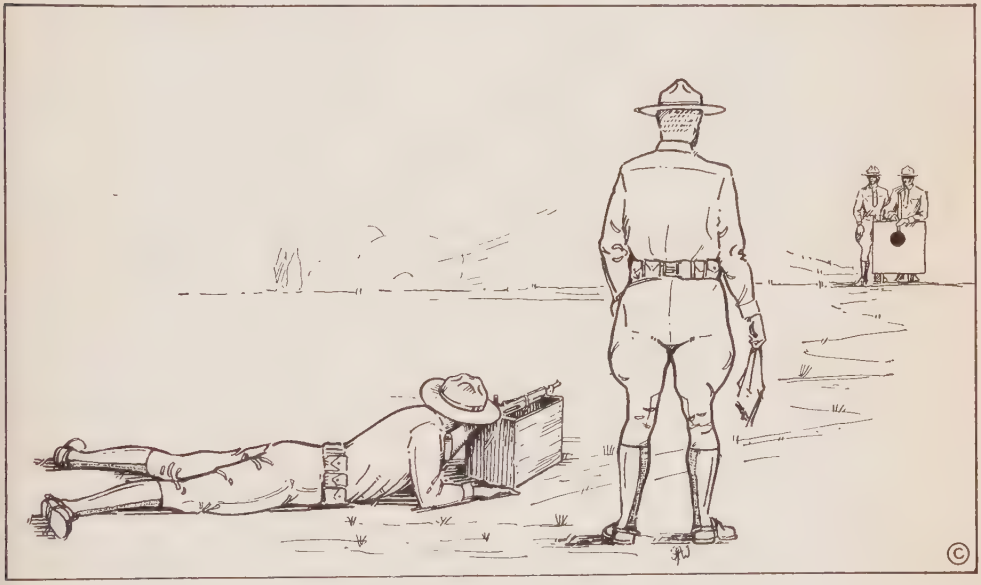


Plate 10. Sighting and Aiming Exercise; Shot Group at 200 Yards (1).

or rifle rest, the coach takes the position illustrated and looks through the sights. The coach directs the marker by command or improvised signal to move the small disc until the bottom of the bull's-eye is in correct alignment with the sights. He then commands "Hold" to the marker. The coach moves away from the rifle and directs the pupil to look through the sights in order to observe the correct aim.

The marker moves the disc out of alignment, the pupil takes position and directs the marker to move the disc until the bottom of the bull's-eye is in correct alignment with the sights, the coach then looks through the sights to see if the alignment is correct.

Finally, the coach aligns the sights on the bull's-eye with various slight errors to determine whether or not the pupil can detect them. Men rotate at each position until all have completed the exercise.

CHAPTER III.

FIRST STEP. SIGHTING AND AIMING (Continued).

Third Sighting and Aiming Exercise.

The equipment for this exercise is the same as that for the previous exercise and in addition, two pencils for each squad.

Short Range Shot Groups. This exercise demonstrates to the pupil the necessity for extreme exactness in taking his sights, and also affords him practise in taking *exactly the same sight* every time. It is manifest that if the rifle is not disturbed and the man's alignment of the sights is always the same he will spot the bull's-eye in the same place every time. At a distance of 50 feet with a small bull's-eye the three successive spottings should be so close together that all can be covered by the unsharpened end of a lead pencil.

This exercise is conducted as follows: The rifle with the sights blackened is placed in a rifle rest and pointed at a blank sheet of paper mounted on a box. The pupil takes the position illustrated (Plate 9) and without touching the rifle or rifle rest looks through the sights. The pupil directs the marker, by command or improvised signal, to move the disc until the bottom of the bull's-eye is in correct alignment with the sights, and then commands: "Hold," to the marker. The coach then looks through the sights to see if the alignment is correct. Then without saying anything to the pupil, he commands: "Mark," to the marker. The marker, without moving the disc, makes a dot on the paper with a sharp-pointed pencil inserted through the hole in the center of the bull's-eye. The marker then moves the disc to change the alignment. The pupil and coach, without touching the rifle or rifle rest, repeat this operation until three dots, numbered 1, 2, 3, respectively, have been made. The three dots are then connected, forming a shot group. The coach and pupil then examine the shot group and note the errors that it shows. If the group be inclosed in a rectangle with its sides horizontal and vertical, the lengths of two adjacent sides show the amounts of the lateral and vertical errors in aligning the sights with the bull's-eye (Fig. C, Plate 7). The exercise is repeated until a satisfactory result is obtained.

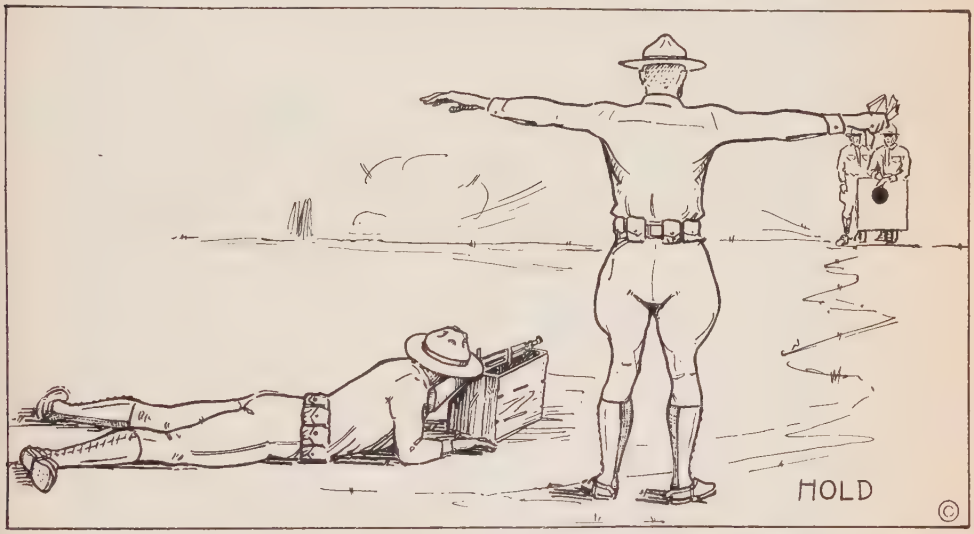
This exercise stimulates the pupil's interest. It displays his errors in a graphical and convincing manner, and is therefore most useful.

CHAPTER IV.

FIRST STEP. SIGHTING AND AIMING (Continued)

Third Sighting and Aiming Exercise (Continued).

Long Range Shot Groups. This exercise is the same as the preceding except that it is conducted at actual battle ranges (200 yards range, 10-inch bull's-eye; and 500 yards range, 20-inch bull's-eye). These ranges simulate actual condi-



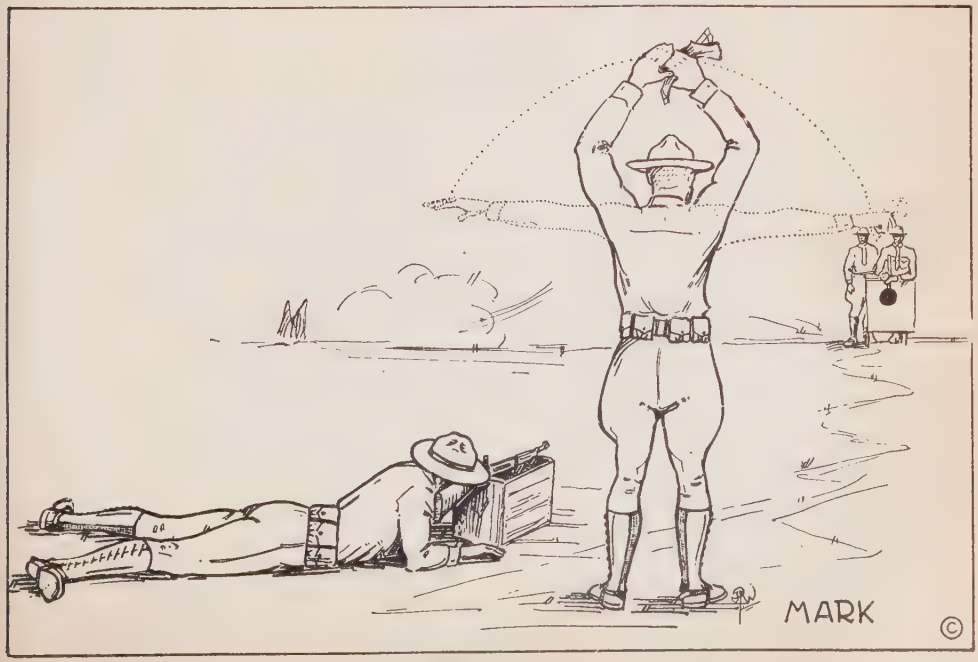


Plate 11. Sighting and Aiming Exercise; Shot Groups at 200 Yards (2).

tions. The outline of the bull's eye will be less distinct, and the pupil must focus his eye on a distant point. The following results are considered satisfactory: At 200 yards the shot group should fall within a circle 1½ inches in diameter (about the size of a silver dollar); at 500 yards the shot group should fall within a circle 3½ inches in diameter.

One man is the pupil, one is the coach, and two are sent to the target frame; one of these moves the disc, the other acts as marker. The pupil indicates to the coach the desired movements of the disc. The coach signals to the man handling the disc the direction he wishes the disc moved. Signals for "Hold" and "Mark" are shown in Plate 11.

At long ranges each man's shot group is traced from the target on tissue paper, marked with his name and sent to the firing line for him to see. Each squad leader collects all shot groups made by his squad and hands them to the officer supervising the instruction.

The sighting and aiming exercise, especially the 200-yard shot group work, may also be carried on during the time devoted to the second and third step. The purpose of continuing these exercises is to bring backward men up to the proper state of proficiency and to assist in keeping the men interested.

Those members of a squad who are not engaged in making long range shot groups should be given additional practice in this exercise at 50 feet.

CHAPTER V.

SECOND STEP. POSITIONS.

Correct position is of great importance in teaching men to shoot. Instruction in position involves blackening the sights, use of the gun sling, taking up the slack, the correct manner of holding the breath, aiming and the use of the aiming device.

Blackening the Sights. In all preparatory exercises involving aiming and in all range firing, both sights of the rifle should be blackened. The blackening is done by holding each sight for a few seconds in the point of a small flame, so that a smooth uniform coating of lampblack will be deposited on the metal. There are a number of materials which give a flame of the right nature for this purpose. Among the most commonly used are: A candle, a piece of camphor, a wax match, a piece of pine wood full of pitch, a small piece of shoe paste, a rag saturated with any kind of oil. Some device must be provided to protect the flame from the wind.

Gun Sling. The gun sling was devised for use in firing as well as for carrying the rifle on the march. By a proper use of the sling the rifleman can hold his piece more steadily and aim better, and he will suffer less from fatigue and the shock of recoil.

During training each man should be shown how to adjust his sling, and when the correct adjustment has been found he should not thereafter change the upper loop. The sling can be tightened (when not in use for firing) by means of the lower loop. Unless the sling is tight it will be of no use in firing. A tight sling will be awkward to get into until one has had some practice, and it will feel uncomfortable until one becomes accustomed to it.

There are two authorized methods of adjusting the sling—the "loop" adjustment and the "hasty sling" adjustment. The hasty sling is more rapidly adjusted than the loop sling, but it gives less support in positions other than the standing position. In range firing the loop sling should be used at all ranges except 200 yards standing. The hasty sling should be used on the range in the standing position. All men should use one or the other form of gun sling adjustment when firing or simulating fire in all problems and maneuvers.

The Loop Adjustment. See Plate 12. Loosen the lower loop (1st figure); adjust the upper loop; twist the loop one-quarter turn to the left and slip the left arm through the upper loop (2d figure); push the loop well up the arm towards the shoulder and hold it there by pulling down the leather keeper (3d figure); now slip the left hand between the sling and the rifle so that the flat side of the sling (not its edge) lies smoothly against the back of the hand and wrist, the hand grasping the stock just below the lower band (4th figure). Do not use the lower loop which should be so slack that there is no tension in it.

Taking up the Slack. The slack is the first movement of the trigger which takes place when light pressure is applied. Taking up the slack is part of the position exercise, because this play must be taken up by the finger as soon as the correct position is assumed and before careful aiming is commenced. The entire amount of slack in the trigger is taken up by one firm pressure of the finger. If the slack is taken up by a slow gradual pressure, the pupil cannot know when the entire amount of slack has been taken up.

Holding the Breath. Holding the breath in the proper manner, while aiming, is important. It will be found that a large proportion of men do not know how

to hold the breath in the proper manner. Each man must be carefully instructed and tested on this point. The correct manner of holding the breath must be practiced during position and trigger-squeeze exercises and whenever firing or simulating fire.

To hold the breath properly, draw into the lungs a little more air than is used in an ordinary breath. Let out a little of this air and stop the rest by closing the throat so that the rest of the air in the lungs will press against the closed throat. Do not hold the breath with the throat open or by the muscular action of the diaphragm as if attempting to draw in more air. The important point is to be comfortable and steady while aiming and squeeezing the trigger.

Use of the Aiming Device. The aiming device (Plate 13) is used in the preparatory training to enable a coach to see the alignment of the sights while the pupil is aiming and squeezing the trigger. It can also be used to enable the

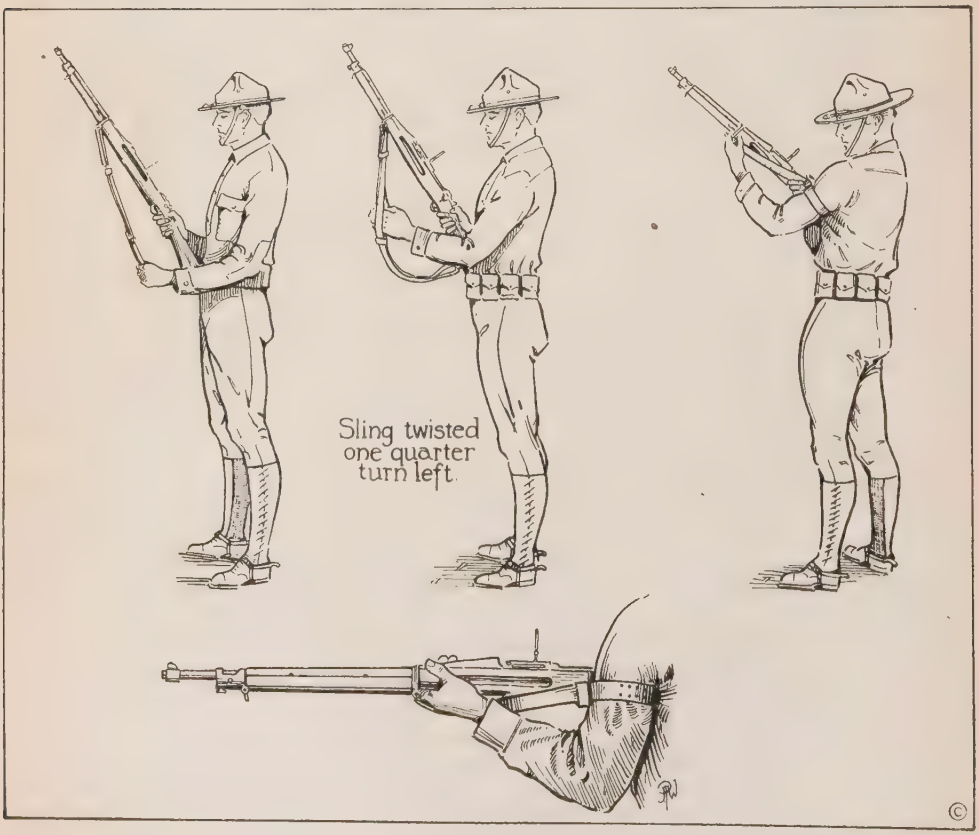


Plate 12. The Loop Adjustment of the Sling.

pupil to observe the correct alignment of the sights while the coach or instructor is aiming, or various small errors and their corrections.

The use of the aiming device requires a good light. It is especially useful in preparatory exercises where the bull's-eye is close and in a good light, or in a well lighted gallery. It cannot be used to advantage on the range on a dull day, or when there is not a good light on the target. The aiming device can be used not only by the coach in looking through it to check the pupil's aim, but also by requiring the pupil to look through it while the coach is illustrating a correct aim or a common fault.

General Rules for Positions.

The following general rules are common to the prone, sitting, kneeling, and standing positions.

It should never be necessary in any position to pull the rifle onto the target by a conscious effort. The piece should point easily and naturally towards the target, and the body should be shifted until this condition exists, otherwise the firer is under the constant strain of pulling the piece out of its natural position in order to aim at the target. Generally, in any position, the rifle, when pointed naturally, makes an angle of about 45° with the front of the body, or the spinal column (in the prone position). (See Plates 14, 16, 18 and 19.) Hence we have the very important first rule for position:

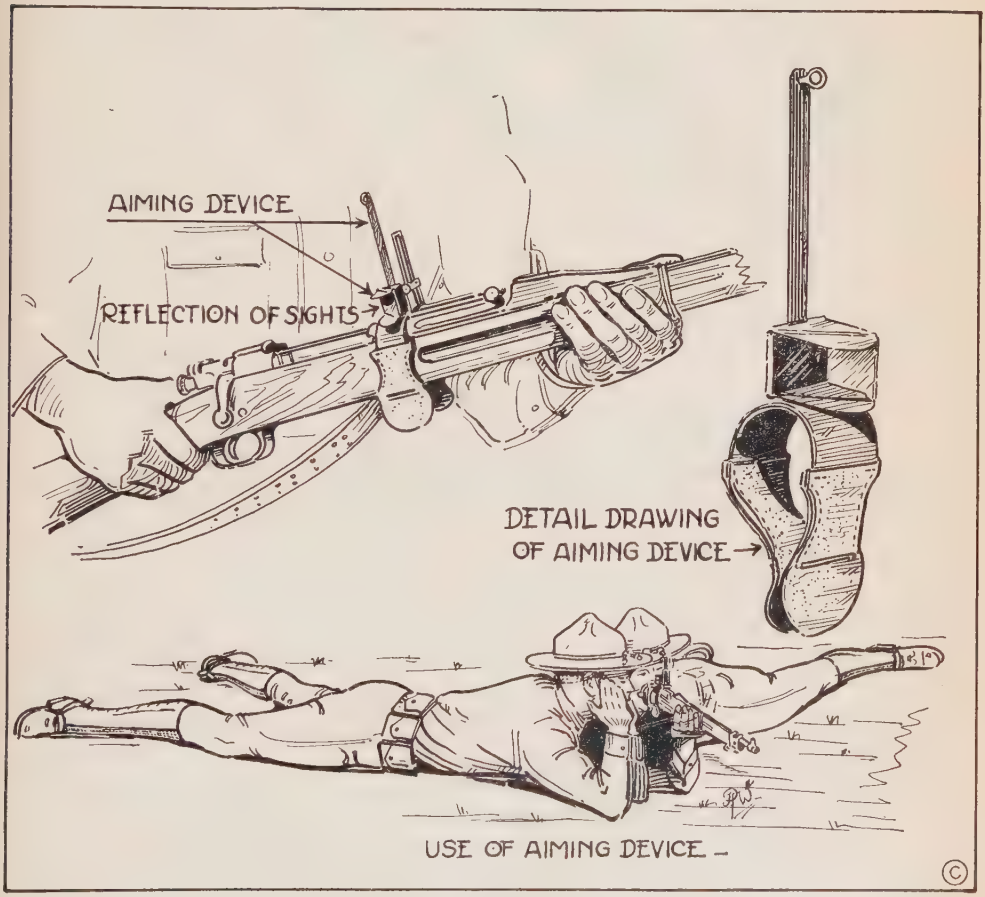


Plate 13. Use of the Aiming Device.

To assume any position, half face to the right and then take the position.

The right hand grasps the small of the stock. The right thumb may be either around the small of the stock or along the right side of the stock. The position of the thumb should be such as to prevent injury to the face in firing. Most riflemen place the thumb along the right side of the stock.

The left hand is against or near the lower band swivel, the rifle resting in the crotch between the thumb and forefinger and on the palm of the left hand, so that the thumb is on the left and the other fingers on the right of the piece.

The left elbow should be as nearly under the rifle as it can be placed without appreciable effort.

The trigger should be squeezed with the second joint of the index finger. The first joint may be used if the length of the man's arm or the size of his hand is such as to make it difficult to reach the trigger with the second joint, or if the first joint of the finger seems more natural and comfortable to use.

The cheek is always pressed firmly against the stock and placed as far forward as possible without straining. It is desirable to have the eye as near as possible to the rear sight.

Left-handed men should be trained to shoot in the right-handed position. If this change is found to produce poor results in the case of any man, he may be

Plate 14. Prone Position.

allowed to shoot in the left-handed position. But he must be given additional preparatory rapid-fire practice to attain rapidity in working the bolt.

Men who cannot close the left eye may shoot in the left-handed position, but in practically all cases of this kind the man can, by practice, acquire the ability to close the left eye or to shoot with both eyes open.

Prone Position.

This position is illustrated in Plate 14. The body (spine) makes an angle of about 45° with the line of aim; legs well apart; insides of feet flat on the ground or nearly so. The upper part of the body (shoulders) is raised well off the ground and supported on both elbows; the right hand grasps the small of the stock with the thumb lying along (not around) the stock. The piece is supported on the palm of the left hand, which is placed just in rear of the lower band swivel. The right cheek is against the stock with the eye well up to the cocking piece. Use the sling and make sure it is tight.

Avoid a position with shoulders too close to the ground. This position makes it necessary to throw the head back into a strained and unnatural attitude in order to see through the sights.

The position, and the angles the arms make with the ground depends somewhat on the size and shape of the man. The position should be easy and comfortable with no part of the body under a strain which might cause unsteadiness.

The exact position of the left hand will depend on the length of arm and

width of chest of the individual. It should be as near the lower band swivel as the conformation of the man will permit. The left hand should never be placed against, or near, the trigger guard. When the gun sling is properly adjusted, it is necessary to raise the right elbow from the ground in order to place the butt of the rifle against the shoulder readily.

Position Exercises.

Instruction in positions is the second step in the preparatory training and is conducted as follows:

The squad leader or other instructor assembles his squad or group, shows them the proper method of blackening the front and rear sights of the rifle and has each pupil blacken his sights.

The instructor explains and demonstrates the loop sling adjustment and assists each pupil to adjust his sling.

He explains and demonstrates the proper manner of taking up the slack and has each pupil practice it.

He explains and demonstrates the proper manner of holding the breath and has each pupil practice it.

He explains and demonstrates the use of the aiming device.

He explains the general rules which apply to all positions.

He explains and demonstrates the prone position.

Each man takes each position and the instructor points out and corrects all mistakes.

The above points having been demonstrated to the assembled group, the instruction becomes individual by the coach and pupil method, supervised by the instructor. Small aiming bull's-eyes are used for this instruction. These bull's-eye must be placed at different heights so that in aiming from the various positions the rifle will be horizontal.

Duties of the Coach in Position Exercises.

In all position exercises the coach watches the following points. They are the same things that the pupil must do, and are given in the same order in which he must do them:

That the sights are blackened.

That the gun sling is properly adjusted, is tight enough to give support, and is high up on the arm.

That the proper position is taken.

That the slack is taken up promptly.

That the aim is correct.

That the breath is held while aiming.

As soon as the aim becomes unsteady the exercise ceases and is repeated after a short rest. The coach checks the pupil's aim occasionally by means of the aiming device, and the pupil's manner of holding his breath by watching his back. The trigger is not squeezed in the position exercises.

CHAPTER VI.

SECOND STEP. POSITIONS (Continued).

Sandbag Rest Position.

The sandbag rest position conforms in every detail to the prone position described in the preceding chapter, with the addition of a sandbag which supports the left forearm, wrist, and hand.

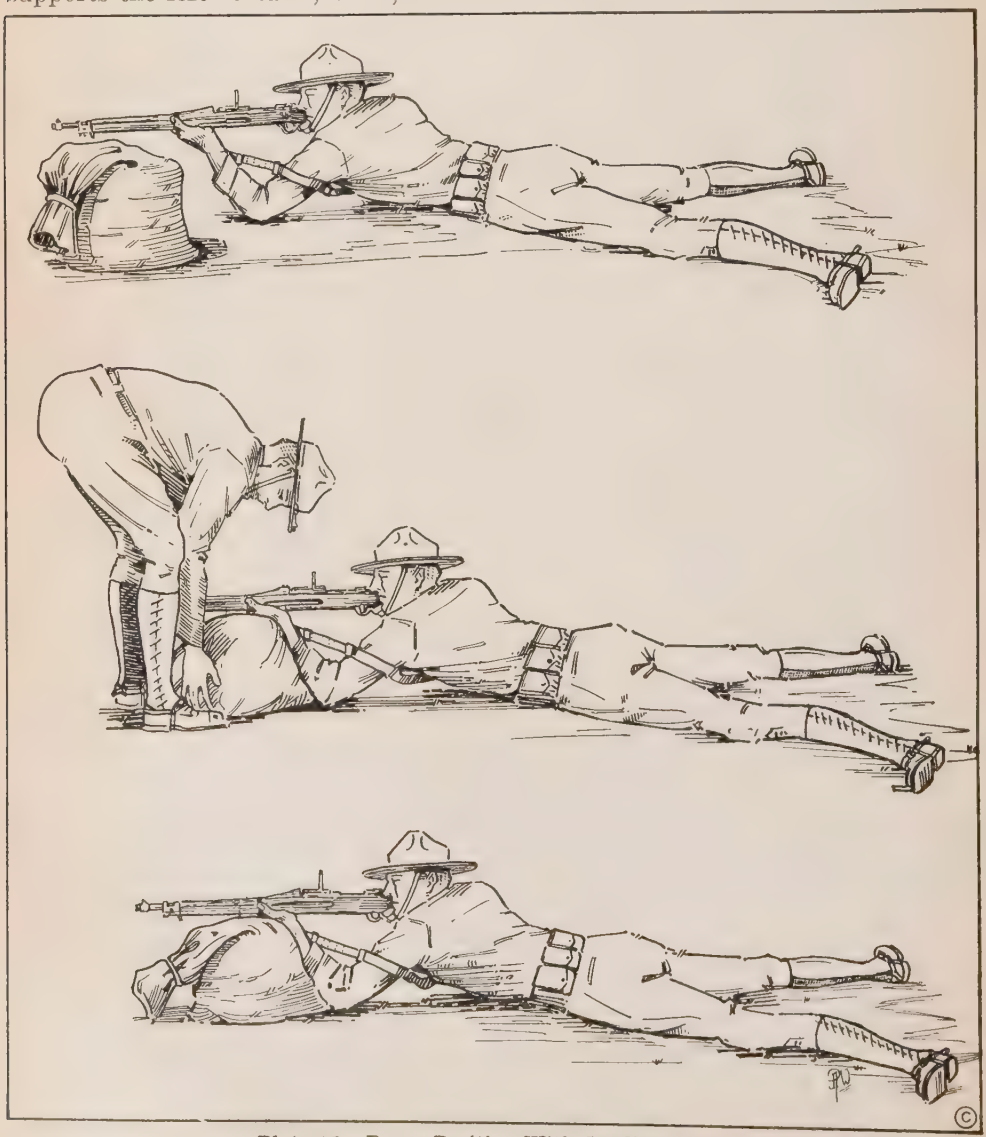


Plate 15. Prone Position With Sandbag Rest.

The bag is a little more than half full and tied near the top, so as to leave considerable free space above the sand.

The pupil should never settle down onto the sandbag. He takes the correct prone position under the guidance of his instructor or coach (1st figure of Plate 15). When the pupil has the correct position the coach moves the sand bag carefully into position supporting the left arm (including the wrist and hand) of the pupil (2d figure of Plate 15). Used in this way the sandbag is a great help. But if it is merely thrown on the ground and the pupil allowed to adjust himself to it, a faulty and strained position is almost certain to result.

The sandbag rest position is used in the first stages of a pupil's training, not to teach steadiness of holding but to teach the correct trigger squeeze. By

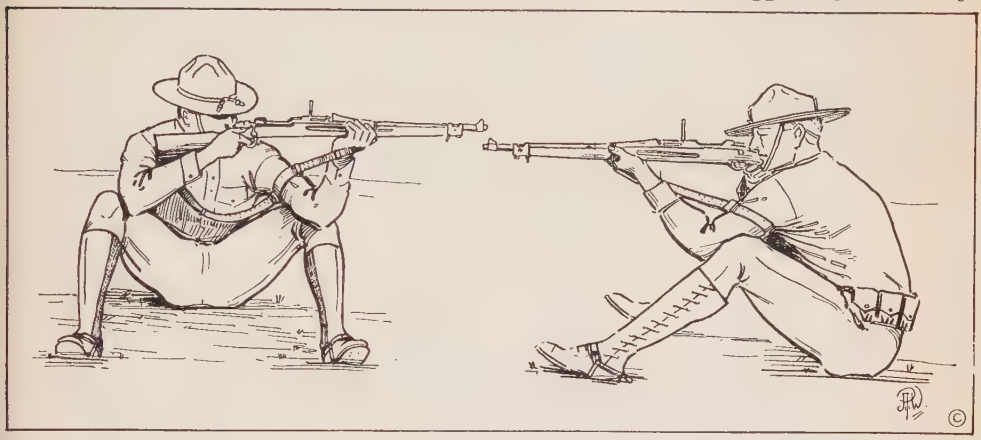


Plate 16. Sitting Position.

using the sand bag the slight unsteadiness of the hold is avoided and the temptation to try to snap in the shot at the instant the sights touch the bull's-eye, an action which causes all poor shooting, is eliminated.

The coach should adjust the sandbag as follows:

1. Have the pupil assume the prone position and aim at the target.
2. Set the sandbag on its bottom and arrange the sand so that it is slightly higher than the back of the pupil's left hand.
3. Facing the pupil, straddle the rifle barrel, and slide the sandbag against the pupil's left forearm, so that the narrow side of the bag supports his forearm and wrist and the back of his hand rests on top.
4. Lower the sandbag to the proper height by pounding it with the hand.

Sitting Position.

This position is shown in Plate 16. It is a very comfortable and convenient position, especially when the ground slopes downward to the front, as it frequently does. As in other positions the firer half faces right and sits down. The body leans forward; the feet are far apart and rest on the heels which are worked into the ground to prevent slipping. The upper arms, just above the points of the elbows, rest against the insides of the knees; the arms press outward against the knees and the knees press inward against the arms and are adjusted until a comfortable equilibrium is secured. The adjustment of the sling and the positions of the head, eye and hands are the same as for the prone position.

Position Exercises.

The squad leader or other instructor assembles his squad and explains and demonstrates the prone position with sandbag rest and the sitting position. He has each man assume each of these positions and corrects any errors that exist. He assures himself that all men remember the duties of a coach.

The above points having been made clear to the assembled squad, the instruction becomes individual by the coach and pupil method.

CHAPTER VII.

SECOND STEP. POSITIONS (Continued).

The Hasty Sling Adjustment. Loosen the lower loop of the rifle sling; grasp the rifle just in rear of the lower band swivel with the left hand, and grasp the small of the stock with the right hand.

Throw the sling to the left and catch it above the elbow and high on the arm. Remove the left hand from the rifle; pass the left hand under the sling, then over the sling and regrasp the rifle with the left hand so as to cause the sling to lie flat along the back of the hand and wrist. The sling may be given one half turn to the left and then adjusted. This twisting causes the sling to lie flat along the back of the hand and wrist. (Plate 17.)

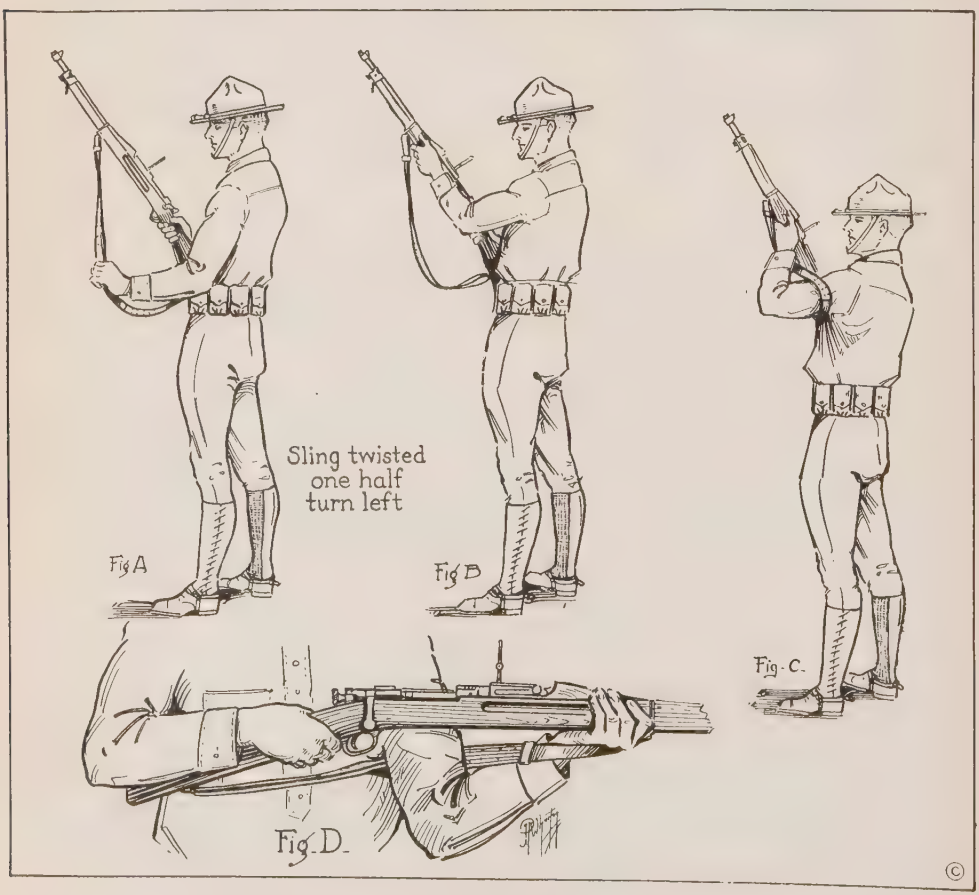


Plate 17. Hasty Sling Adjustment.

Standing Position.

As in other positions the pupil is half faced to the right in a perfectly erect attitude, knees straight without stiffness, head in normal position. The feet are spread at least one foot and not more than two feet apart to insure a firm

stand. The positions of the hands is as heretofore explained. The butt of the piece is well up on the shoulder (not down on the chest or over on the arm) and is firmly pressed against the body (to steady the aim and reduce the shock of recoil). The right elbow is at the height of the shoulder.

This position is shown in Plate 18. *It is the only correct standing position.* Variations from this position, especially extending the left arm, or drawing the left hand to the rear, leaning back from the waist and supporting the left elbow against the body, make for unsteadiness, result in poorer scores, and are not authorized.

Kneeling Position.

As in other positions the pupil half faces to the right, drops the right knee to the ground and sits on the right heel or the side of the right foot. The sole of the left foot is planted squarely on the ground, the leg straight up; left upper arm supported on left knee with the point of the left elbow just in front of the knee. The adjustment of the sling and the positions of the hands, eye and cheek are as heretofore explained. This position is shown in Plate 19.

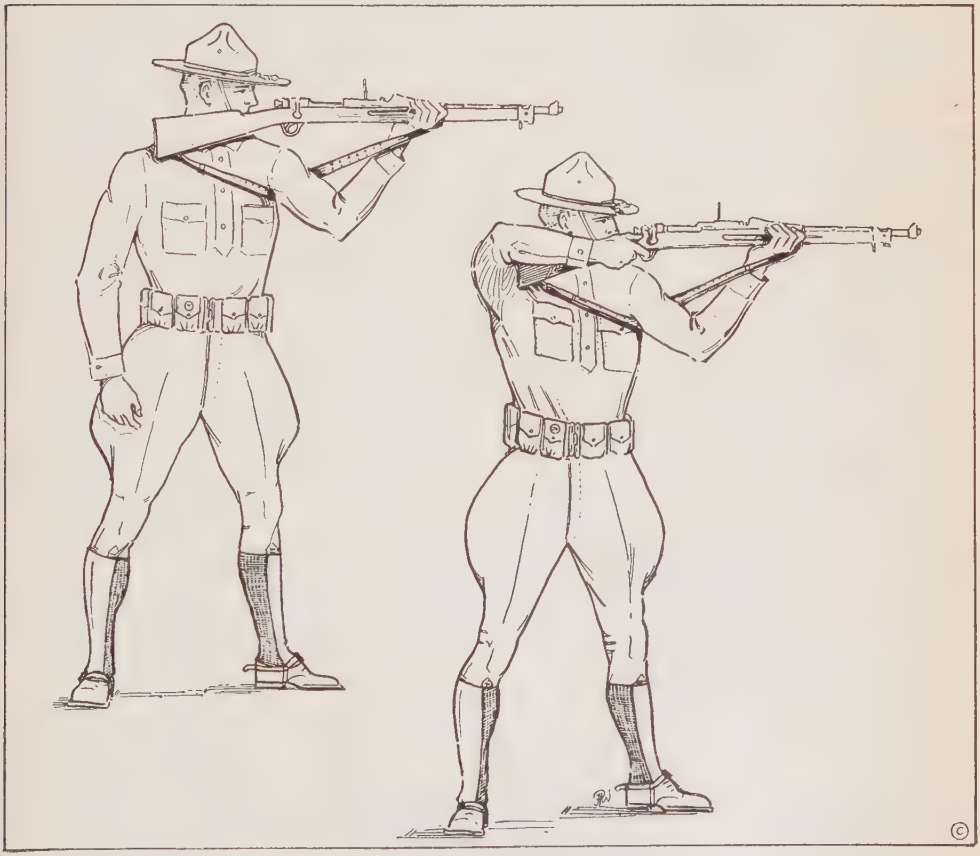


Plate 18. Standing Position.

Position Exercises.

The squad leader or other instructor explains and demonstrates to his assembled squad the hasty sling adjustment and assists each man in adjusting

his sling. He then explains and demonstrates the standing and kneeling positions. He has each man assume each of these positions and corrects any mistakes that he may make.

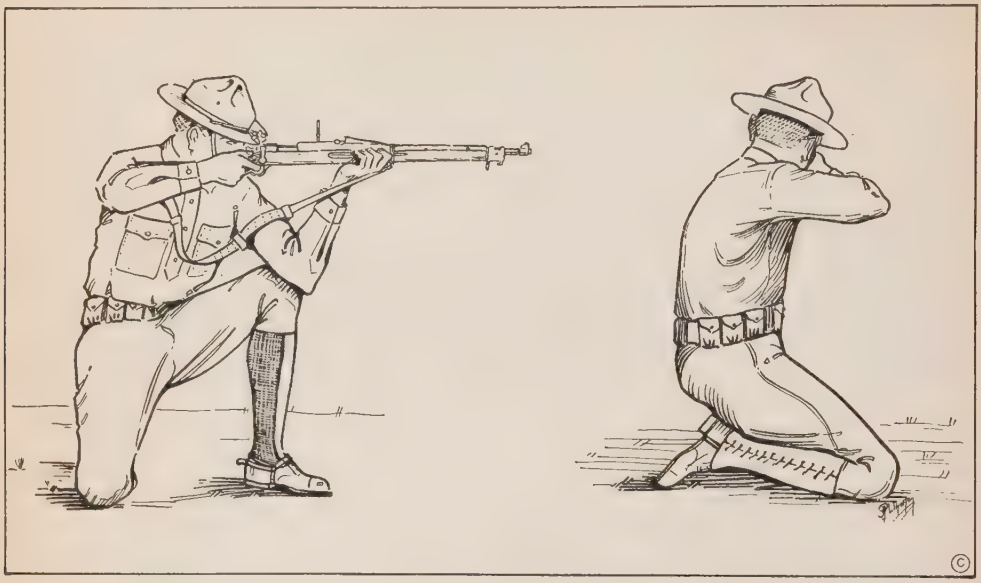


Plate 19. Kneeling Position.

The instruction then becomes individual by the coach and pupil method. The duties of the coach are the same as in all previous position exercises.

CHAPTER VIII.

THIRD STEP. TRIGGER SQUEEZE.

Importance.

The secret of successful rifle shooting is a correct trigger squeeze, which must of course be perfectly coordinated with a correct aim. Having learned to align the sights and the bull's-eye (or other mark) correctly, and to maintain this alignment for a reasonable but brief time, the rifleman or would-be rifleman must now learn to discharge the piece without disturbing his correct alignment of sights and bull's-eye.

How to Squeeze the Trigger.

Trigger squeezing involves a knowledge of the mechanism of the rifle and the physical and psychical mechanism of the man. A rifle does not go off the instant one touches the trigger, unless given a jerk. The trigger moves a measurable distance before the firing pin is released.

Now if left to himself the most natural thing for a man to do is to align his sights on the bull's-eye, and seeing them correctly aligned to give a sudden jerk of the trigger, hoping to get the shot off before the sights can get out of alignment.

This is the natural thing to do, but it is the wrong thing. It is the cause of nearly all poor shooting. *Jerking the trigger always deranges the aim.* It pulls the gun off its mark. But in addition to this it causes other disturbances. The man *knows that the gun will go off when he jerks the trigger.* Consciously or unconsciously he "flinches" (as we say) from the heavy blow on the shoulder that he knows is coming and which jars his entire body. Also he shuts his eye just when he should have had it open to make sure that the final alignment of sights was correct. He doesn't know *where* the gun was really pointed when it went off. They signal that the shot went over the target, and the rifleman curses, and perhaps he changes his sights—which are not in the least at fault.

Now how may all this trouble be avoided, or corrected? It cannot be corrected by "practise" in doing the wrong thing over and over. It is avoided by the following very simple procedure, which is the very pith of our system of rifle shooting.

When you have your sights properly aligned on your mark do not set off the gun by a sudden jerk of the trigger at that instant. Keeping your eye open and holding your sights on the mark, apply a *gradual and steady pressure* to your trigger. If you see your sights wandering out of line *stop pressing the trigger.* Do not release it, but hold what you have, and bring your sights back into alignment. Then continue the pressure on the trigger. In brief, press the trigger slowly, steadily and gradually, whenever your sights are properly aligned, stop squeezing (but hold what you have) when the sights are out of correct alignment. Presently, upon the first or the second, or maybe the third application of pressure to the trigger the gun will go off. You cannot tell just when it will go off if you are squeezing and not jerking the trigger. When it goes off you will flinch, and close your eye and be knocked backwards by the recoil. But all this happens just a fraction of a second *after* the discharge. The bullet was already out of the gun and flying true to the point at which you aimed before you winked and felt the shock. That makes all the difference in the world. You do not close your eye or flinch because you don't know when to do it, as *you cannot tell when the gun will go off.* What happens afterward makes no difference.

Think this over carefully. It is so important, this trigger squeeze, that everything else in shooting must be regarded as merely accessory. When you can hold on your mark and squeeze the trigger as described above you will be a good shot.

This is the only correct way to squeeze the trigger and it should never be done in any other manner. Develop it into a fixed habit by always doing it the same way, whether you are firing on the range or snapping your piece at a mark. You get just as good (and much cheaper) practise snapping at a mark as when actually firing.

Calling the Shot. If the trigger is properly squeezed the right (aiming) eye will be open when the gun goes off and the firer will know just where his sights were pointed at the instant of discharge, whether this be the bull's-eye or some other point. The man firing at once announces to his coach the point of aim. This is known as "Calling the shot." If the bullet hits the point of aim this shows that the sight setting is correct. If it does not the firer has the necessary data for an intelligent correction of his sights as explained later. Even when simulating fire the rifleman should note his point of aim so as to acquire the habit.

The Trigger Squeeze Exercise.

Trigger squeeze exercise is accordingly by far the most important step in preparatory training. It is conducted as follows:

The instructor explains to his pupils the importance of correct trigger squeeze and just how it is done. He makes certain that every man fully understands this important matter.

The instructor explains the purpose of calling the shot.

These matters having been made clear instruction proceeds by the coach and pupil method.

The first practise in trigger squeeze is given in the prone position with the sandbag, as this is the steadiest possible position. This is followed by instruction in prone position without sandbag, and finally in other positions.

Because of the importance of trigger squeeze much practise is needed. The pupil's method of trigger squeeze may be tested by use of the aiming device. Pupils will not simulate fire in any position until they have acquired a correct trigger squeeze. Thereafter in all simulated fire the pupil should align his sights carefully on an actual target or mark, squeeze the trigger properly, and mentally call his shot, exactly as if actually firing.

Duties of the Coach in Trigger-Squeeze Exercise.

In the trigger-squeeze exercises the coach, in addition to the items listed at the end of Chapter V, watches the following points:

That the trigger is squeezed properly (only when the aim is correct and then only by a steady pressure).

That the pupil calls the shot.

The coach occasionally checks the aims by means of the aiming device, and the breathing by watching the back of the pupil under instruction.

CHAPTER IX.

FOURTH STEP. RAPID FIRE.

Importance. Procedure.

There is no essential difference in the preliminary training for slow and for rapid fire. The method of aiming, positions and trigger squeeze are the same. Rapid fire means accurately aimed fire delivered at a high rate of speed. But accuracy comes first. Speed is acquired by rapid reloading from the magazine with the rifle at the shoulder, keeping the eye on the mark so as not to lose time hunting it again, and inserting fresh clips of cartridges skillfully and quickly. The aim and the trigger squeeze are deliberate, as in slow fire.

There is of course a natural tendency to sacrifice accuracy to speed, and this must be guarded against.

It is possible for a trained man to fire 10 or even 15 accurately aimed shots per minute, but this requires long experience. Progress should be gradual until the pupil can fire 10 aimed shots a minute. Finally, after experience on the range, the rate can be raised to 15 per minute. But it must always be borne in mind that rapid fire is of little value unless it is also accurate.

One of the worst habits in rapid fire is looking down into the chamber to see the fresh cartridge slide in. This slows down the bolt operation and causes the man to take his eye off his mark. On the range he may then fire on a target other than his own. Or if his mark be indistinct, as in actual battle, he may lose it altogether. In any case he loses valuable time and may attempt to make it up by hurried and careless aiming.

Training for rapid fire extends throughout the year. This training is accomplished by requiring all simulation of fire during problems and maneuvers to be carried out along the proper lines.

Instruction in rapid fire is divided into two parts: First, bolt operation, in which the soldier is taught and practiced in the operation of the bolt; and, second, rapid fire exercises with dummy cartridges, given under conditions conforming as nearly as possible to those of actual range practice. Full-sized targets are placed at 200, 300, and 500 yards from the men under instruction with some simple arrangement permitting the target to be exposed to view for the prescribed period of time.

Bolt Operation Exercise.

This exercise is held for the purpose of acquiring a smooth and rapid bolt operation, and the trigger is not pressed. The trigger is tied back to the trigger guard, in order to cause the bolt action to be the same as it is when the trigger has been pressed. If the trigger is not thus tied the piece will remain cocked when the bolt is shoved home, and the amount of force necessary to raise the bolt again will be less than when actually firing or properly simulating fire.

Practice in bolt operation should be held in all positions and no pupil is considered proficient until he can operate the bolt at least 20 times in 20 seconds while in the prone position. The first hour of rapid-fire training should be devoted to bolt operation exercises. Thereafter each pupil should be given additional practice from time to time until he is considered proficient.

The bolt operation exercise is conducted as follows:

The squad leader or other instructor places his squad or group in line, has each man tie the trigger to the back of the trigger guard and explains why this is done.

The instructor explains and demonstrates that the bolt is jerked fully back

and slammed home with practically one motion, instead of by four distinct motions as men are inclined to do at first.

The instructor demonstrates the bolt-operation exercise emphasizing the duties of the coach.

The above points having been explained, the instructor places his squad or group in line, arranged in pairs to act as coach and pupil, requires the pupils to assume a firing position and personally gives the commands for starting and stopping the exercise. Frequent changes of coach and pupil are necessary to prevent undue fatigue.

Duties of the Coach in Bolt-Operation Exercise.

In the bolt-operation exercise the coach watches the following points:

That the bolt is operated properly and rapidly.

That the eye is kept on the target.

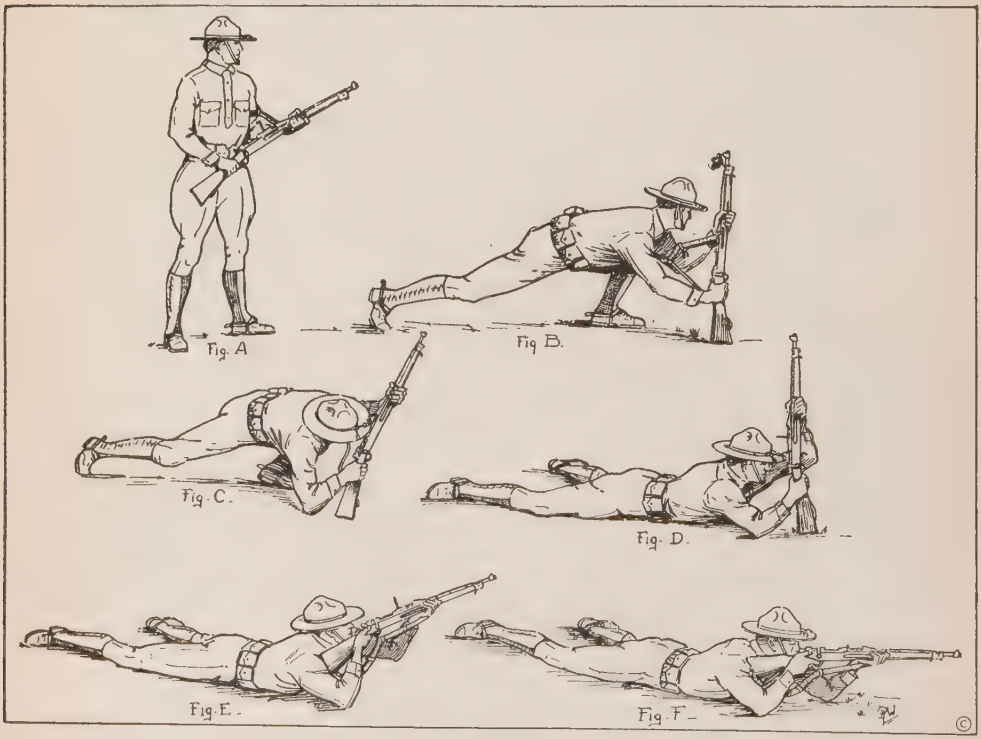


Plate 20. Assuming the Prone Position Rapidly.

That the right hand is brought to the small of the stock, the rifle to a horizontal position, and the cheek placed against the stock, each time the bolt is closed.

That the butt of the rifle is kept against the shoulder.

That the elbows are kept on the ground if in the prone position, or between the legs if in the sitting position.

That no attempt is made to aim or press the trigger.

CHAPTER X.

FOURTH STEP. RAPID FIRE (Continued).

Assuming Positions Rapidly.

In range practice, it is necessary to assume the sitting or the prone position from standing and fire 10 rounds in a given length of time. Accordingly, practice in assuming these positions must be had before rapid-fire exercises can be taken up. Ability to assume positions rapidly also has an important application in battle. It affords a greater protection to the soldier and at the same time permits accurate fire.

Assuming Prone Position Rapidly.

The movement is described by the numbers for the purpose of instruction in the sequence of movement. After this sequence is learned the position will be taken as one motion. With practice, men can take the prone position and be aiming at the target in 3 seconds.

Being at the ready, sling adjusted, throw the right foot well back and bend left knee as low as possible, placing the butt of the rifle on the ground 4 or 5 inches to the left, and slightly in front, of the spot where the right elbow is to rest. The grip on the rifle is retained with both hands.

Place the right elbow on the ground.

Place the left leg back near the right one, feet apart, and slide well back while lying on the stomach.

Take the butt of the rifle off the ground and place it against the right shoulder.

Lower the left elbow to the ground.

These movements will bring the firer into his normal position, with the rifle pointing at the target. Care should be taken to place the butt of the rifle on the ground without jar and to place the elbows on the ground in the same manner. With practice this position can be assumed very rapidly and without shock.

When the details of this movement have been learned it should be practiced as one movement. When properly done the feet will still be sliding back into position when the rifle is being placed on the shoulder, and the left elbow will come to the ground at almost the same time that the backward movement of the body is completed.

The ability to assume this position rapidly is a distinct advantage in war because a man can thus fire an aimed shot more quickly than if he remained standing. The position also reduces the enemy's target from a standing to a prone figure. Instruction in taking positions rapidly should be given during the period of preparatory training.

Assuming Sitting Position Rapidly.

To assume the sitting position rapidly, actually sit down, aim, and mark the spots where the heels go. Place the feet (while standing) at the places thus marked, and at command or signal drop to the sitting position without moving the feet, breaking the fall by placing the right hand on the ground to the right rear. After a little practice one learns how to place the feet so as to drop to the sitting position without again moving them.

Other methods of assuming the sitting position rapidly may be used.

Rapid-Fire Exercises.

The squad leader or other instructor assembles his squad or group and explains and demonstrates:

The correct method of loading a clip of ammunition into the magazine, using dummy cartridges for the demonstration. He explains that the ball of the right thumb is placed on the powder space of the upper cartridge very close to the clip, with the fingers under the rifle against the floor plate, the cartridges being shoved into the magazine with a firm steady push. The empty clip is removed by the right hand.

The working of the bolt while in the prone position keeping both elbows on the ground and allowing the muzzle to drop down and to the right. The working of the bolt in the sitting position keeping both elbows between the legs and allowing the muzzle to drop down and to the right.

The disadvantage of looking into the chamber while working the bolt and of looking into the magazine to see if there are any more cartridges left.

That the follower holds the bolt back when the magazine is empty and that the eye is never taken from the target until the follower holds the bolt, except when a man has counted the shots fired and knows that his magazine is empty.

That the butt of the rifle is never taken from the shoulder when working the bolt.

That a quiet confident movement of the hand in taking the clip from the belt and placing it in the clip slot is really more rapid than a hurried movement and avoids the chance of fumbling which usually accompanies hurried movements.

The above points having been explained and demonstrated, the instructor places his squad or group in line and arranges them in pairs so that they may act as coach and pupil. The commands and procedure are exactly the same as in actual rapid fire on the rifle range, except that practice dummy ammunition is used. Rapid-fire targets set at 200, 300, and 500 yards from the line of pupils are exposed to view for the proper interval of time, upon signals from the instructor in charge of the line. Sights are set at the actual range being used.

A curtain of target cloth or other material may be arranged on each target frame in such a way that it can be dropped to expose the face of the target, and pulled up again to conceal it. A cord which runs over the top of the target frame may be used for this purpose.

When lack of time, material, or space make it absolutely necessary, the rapid-fire exercises may be held at shorter ranges and on targets proportionately reduced in size. This practice as well as all other preparatory exercises can be held indoors when weather conditions make it necessary.

Practice dummy ammunition only should be used in this exercise. The use of range dummy ammunition except on the firing line is prohibited.

Duties of Coach in Rapid-Fire Exercises.

In a rapid-fire exercise the coach, in addition to the items listed at the end of Chapter V, watches the following points:

That the trigger is squeezed properly

That the bolt is worked rapidly and that the eye is kept on the target, the elbows kept in place and the butt of the rifle kept to the shoulder while working the bolt.

That the magazine is reloaded quickly and without fumbling.

CHAPTER XI.

EFFECT OF WIND. SIGHT CHANGES.

Wind has a considerable effect on the flight of the bullet, which effect of course increases with the range and time of flight. These effects must be carefully studied and allowance made for them if shooting is to be accurate. Other conditions have but slight effect and generally may be disregarded. Expert shots make allowances for such conditions at the longer ranges.

Direction and Force of the Wind.

The horizontal clock system is used in describing the direction of the wind. The firing point is considered the center of the clock and the target is at 12 o'clock. A 3 o'clock wind comes directly from the right. A 6 o'clock wind comes straight from the rear. A 9 o'clock wind comes directly from the left. A wind that is constantly changing its direction back and forth is called a "fish-tail wind."

The force of the wind is described in miles per hour. The force of the wind is estimated by throwing up light dry grass, dust, or light paper and watching how fast it travels, by observing the danger flags, and by the mirage. In general a light breeze is a 5- to 8-mile wind; a fairly strong breeze is a 10- to 12-mile wind. Wind blowing 20 miles an hour is very strong.

Wind from either side blows the bullet out of its path. This must be allowed for by moving the rear sight toward the wind by means of the wind gauge. The worst kind of a wind in which to shoot is a fish-tail wind at 12 or 6 o'clock. The amount the bullet will be blown from its path depends on the force and direction of the wind and on the distance to the target.

The amount of windage to allow for the first shot is shown in the "Table of Wind Allowances" in the score book. It can be found approximately by applying the "wind rule."

Table of Wind Allowances.

Range (yards).	1, 5, 7, or 11 o'clock winds.						2, 4, 8, or 10 o'clock winds.						3 or 9 o'clock winds.					
	Velocity.	Points.	Inches.	Velocity.	Points.	Inches.	Velocity.	Points.	Inches.	Velocity.	Points.	Inches.	Velocity.	Points.	Inches.	Velocity.	Points.	Inches.
200	4	0	0	16	¼	2	4	0	0	16	⅓	4	4	¼	2	16	½	4
	8	¼	2	20	⅓	4	8	¼	2	20	⅔	4	8	¼	2	20	¾	6
	12	¼	2	24	½	4	12	⅓	4	24	¾	6	12	½	4	24	1	8
300	4	¼	3	16	½	6	4	¼	3	16	1	12	4	¼	3	16	1	12
	8	¼	3	20	¾	9	8	½	6	20	1	12	8	½	6	20	1½	15
	12	½	6	24	¾	9	12	¾	9	24	1½	15	12	¾	9	24	1½	18
500	4	¼	5	16	1	20	4	½	10	16	1⅔	35	4	½	10	16	2	40
	8	½	10	20	1¼	25	8	½	15	20	2	40	8	1	20	20	2½	50
	12	¾	15	24	1½	30	12	1¼	25	24	2½	50	12	1½	30	24	2¾	55
600	4	¼	6	16	1½	30	4	½	12	16	2	48	4	½	12	16	2½	60
	8	½	12	20	1½	36	8	1	24	20	2½	60	8	1½	30	20	3¼	78
	12	1	24	24	1¾	42	12	1½	36	24	3	72	12	1¾	42	24	3½	84

After the first shot is marked, the correction necessary in windage is found by referring to the ruled targets in the score book showing the windage correction for each range. (See Plate 21.) Windage corrections can be estimated also by applying a wind-gauge rule.

Wind Rule.

The range (expressed in hundreds of yards), multiplied by the velocity of the wind and divided by 10, equals the number of quarter points to allow for 3 o'clock or 9 o'clock wind.

Example. At 500 yards the wind is blowing 8 miles per hour at 3 o'clock, $\frac{5 \times 8}{10} = 4$ quarter points or 1 point of windage. The sight should have one point of right windage for the first shot.

As the direction of the wind comes nearer and nearer to 12 or 6 o'clock the amount of windage necessary becomes less and less. Winds one hour away from 3 and 9 o'clock require only slightly less windage. Winds one hour away from 12 and 6 o'clock require half as much windage as 3 or 9 o'clock winds.

Winds that are at 12 o'clock require no windage, but it is a very rare thing to have a steady wind from either 12 or 6 o'clock. Strong winds from 12 o'clock tend to retard the bullet a little, and from 6 o'clock tend to accelerate the bullet but the amount is so slight that a correction in elevation is very seldom necessary. At most this allowance is very small.

Wind-Gauge Rule.

One point of windage moves the point of impact of the bullet 4 inches for each 100 yards of range. Thus one point of windage will move the hits 8 inches at 200 yards, 12 inches at 300 yards, and 20 inches at 500 yards. This rule is not exact, but near enough for all practical purposes.

The point of impact of the bullet will move in the same direction as the rear sight is moved. For example, if it is desired to move the hits to the left, the rear sight must be moved to the left; if it is desired to make the hits strike lower and to the right, the rear sight must be moved down and to the right.

Whether or not to regard changes of less than one-fourth point in applying the rules is a matter of opinion and unimportant.

Mirage. Heated air in motion near the ground surface is known as "mirage." The direction in which the heat waves are blowing and their speed are watched by good riflemen in judging the direction and velocity of the wind. The mirage is of assistance in judging the wind principally on bright days when there is a light variable breeze.

In a moderate wind the waves seem to race across the range and to lie close to the ground. In a light wind the waves do not lie so close to the ground and appear to move more slowly. In strong winds the mirage cannot be seen.

When there is no wind, or when the wind is at 12 or 6 o'clock, the mirage seems to boil. The "boiling" of the mirage signifies that the wind is changing direction. The firer should wait until the mirage begins a steady flow from one side or the other before firing.

Mirage can be seen much better with a field glass or telescope than with the eye alone.

Elevation Rule. Changing the elevation 100 yards at any range will give a change on the target, in inches, equal to the square of the range (expressed in hundreds of yards).

Example: At 200 yards, changing the elevation 100 yards makes 4 inches change on the target; at 300 yards, 9 inches; 500 yards, 25 inches; at 600 yards, 36 inches. This rule is not exact, but near enough for all practical purposes.

The horizontal lines in the model targets in the score book also show how much change to make in the elevation at each range. When a change in elevation is necessary, it is best to consult the model target in the score book before deciding how much change to make. (See Plate 21.)

Light. Changes of light do not affect the bullet, but do affect the aim. The effect of changes of light is very slight with most riflemen. The correction for

variations in light does not exceed 25 yards in elevation at any range. The effect of changes of light is not uniform upon the aim of all riflemen.

As a general rule men unconsciously aim a little lower in a poor light than in good light and consequently need more elevation when the light is poor. This lowering of the aim is due to the fact that the outline of the bull's-eye is not distinct in a poor light; therefore men cannot hold as close to the bull's-eye and still be sure of their aim. As a rule poor lights exist on dark days when there is a haze in the air; on very bright, warm days when there is a

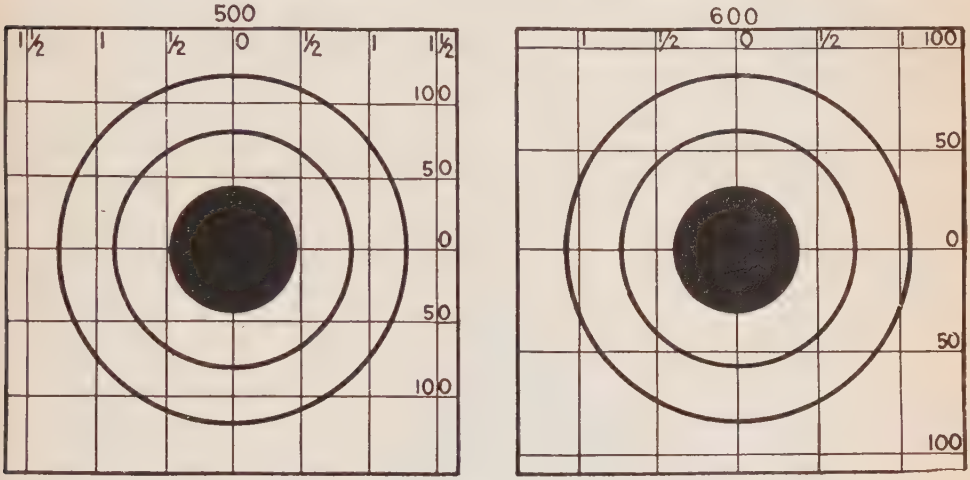


Plate 21. Model Target "B", 500 and 600 Yards.

decided mirage; and when the sun is back of the target. The best light for shooting is when the sky is uniformly overcast and there is sufficient light to see the target clearly.

Sunlight from one side has the same effect, with most men, as wind from that side. This is because the side of the front sight toward the sun is more clearly defined and unconsciously held under the center of the bull's-eye. Such holding places the bullet on the opposite side of the bull's-eye from the sun. The allowance of windage for sunlight varies from zero to almost one-half a point. In making this allowance the sight is moved toward the sun.

Zero of a Rifle.

The zero of a rifle for each range is the point at which the rear sight must be placed, in both elevation and windage, in order to hit the center of the bull's-eye on a normal day when there is no wind. This zero may not conform to the marks on the sight leaf and the wind gauge. The zero of any one rifle may differ with different men owing to the difference in their way of holding the rifle, or of aiming.

Each man must determine the zero of his own rifle for each range. He does this by studying the data which he has written in his score book concerning sight settings, sight changes, light, and the direction and velocity of the wind. The zero of a rifle is best ascertained on a day with an overcast sky when there is no wind. Having learned the zero of his rifle, the rifleman computes all his windage and elevation allowances for the first shot from this zero and not from the zero marked on the rifle sight, unless the two correspond.

A group in rapid fire should strike the same place as in slow fire. Rapid-fire groups that vary in position from slow-fire groups are due to imperfect trigger squeeze in rapid fire, and consequently these groups are more scattered. Men should endeavor so to squeeze the trigger that the rapid-fire sight settings will be the same. But if there is a constant variation in the two sight settings,

each man should note it in his score book and set his sight in rapid fire so as to make the groups count as much as possible.

Canting the Rifle. If the rifle is canted, the bullet will not hit exactly where the rifle is aimed. Even unskilled shots, however, cant the rifle but very slightly, and the effect on the strike of the bullet is correspondingly slight. The mistake of ascribing a wide 4 or a 3 to a slight cant of the rifle should not be made.

Shooting Up or Down Hill. In shooting either up or down hill less elevation is needed than when shooting on the level. The steeper the hill the less elevation is needed, so that when firing vertically up or down no elevation at all is needed, no matter how distant the target. Slight slopes that may be found on target ranges have no appreciable effect upon the elevation used.

TARGETS.

Target A. The short-range target, used for 200 and 300 yards, is a rectangle 6 feet high, 4 feet wide. Black circular bull's-eye 10 inches in diameter, value of hit, 5; center ring, 26 inches in diameter, value of hit, 4; inner ring, 46 inches in diameter, value of hit, 3; outer, remainder of target, value of hit, 2.

Target B. The mid-range target, used for 500 and 600 yards, is a square 6 feet on a side, black circular bull's-eye 20 inches in diameter; center ring,

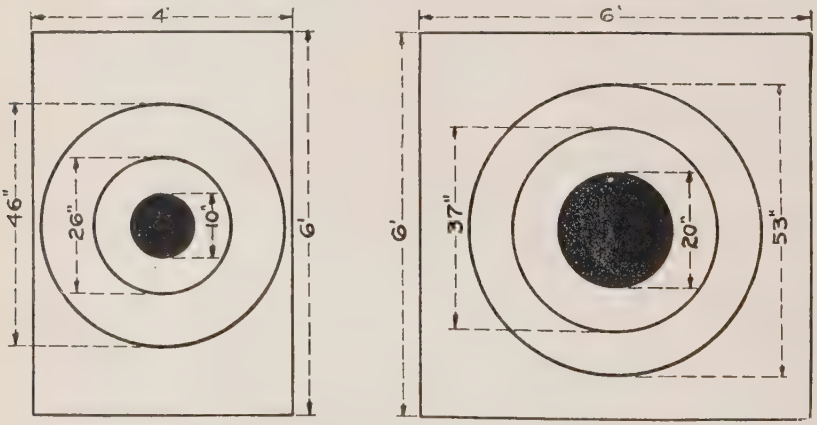


Plate 22. Target A; target B.

37 inches in diameter; inner ring, 53 inches in diameter; outer, remainder of target. Value of hits, same as on target A.

Target D. The rapid-fire target. A black silhouette representing a soldier in the prone position placed in the middle of a rectangular target 6 by 6 feet. Value of hits in the figure, 5; in the space immediately outside the figure, 4; in the space immediately outside the 4 space, 3; remainder of the target, 2.

Practical Exercises.

In these exercises the instructor uses the full-sized A, B, and D targets, with spotters to indicate the position of the hits.

The instructor assembles his squad or group, each pupil having his rifle, score book, and pencil and conducts the exercise as follows:

Points out the wind gauge and explains that each line of division represents one point of windage.

Points out the graduations on the sight leaf and explains that the line directly *under* the number represents the corresponding range.

Explains the effect of wind and cautions the class to disregard all atmospheric influences except wind.

Explains the Table of Wind Allowances in the score book.

Explains the wind rule, wind-gauge rule, and elevation rule. By asking questions he assures himself that these rules are understood.

Explains the horizontal and vertical lines on the "model targets" in the score book and assures himself that each man understands the use of this diagram.

Shows the pupils how to draw the elevation and windage lines, for each range, on the blank targets of the score book upon which they are to plot their shots during range firing.

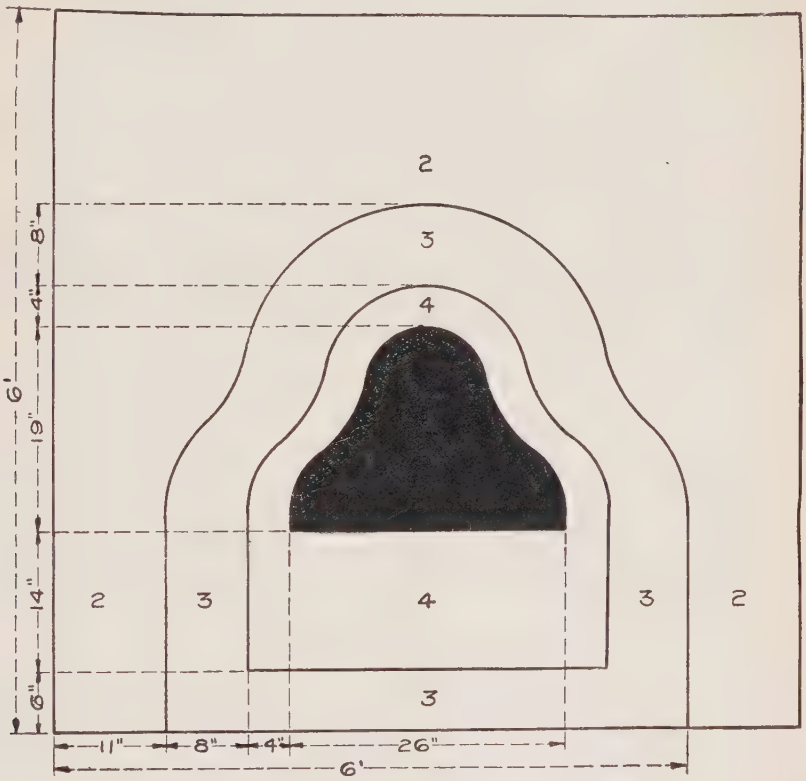


Plate 23. Target D.

The above points having been explained to the assembled group, the pupils are placed in pairs. The instructor tests the ability of the members of the class to set the sights for the first shot by use of the wind rule and the Table of Wind Allowances. Every time the sights are set, each pupil examines the sight of the pupil paired with him and tells the instructor when called on the sight setting used.

Instructor tests ability to change sights intelligently after first shot by referring to the horizontal and vertical lines on the model target.

Examples. "You are at 500 yards and estimate the wind to be 10 miles at 3 o'clock; set your sights for the first shot. Jones, what does Smith's sight read? Robinson, what should the sight read?" The instructor, by questions and explanations, assists the men who have made mistakes.

"You are at 600 yards and estimate the wind to be 10 miles at 9 o'clock. Set your sights for the first shot. Suppose you fired and the spotter marked the hit here (placing a spotter in the 4 space near the bull's-eye, at 3 o'clock) and you were sure your hold and trigger squeeze were good; change your sights

to bring the next shot into the center of the bull's-eye. Johnson, what does Brown's sight read? Snider, what should the sight read?"

The instructor gives a number of examples with the wind at different angles and velocities and at the various ranges until the class thoroughly understands the use of the wind gauge.

Following the instruction in the use of the wind gauge, the instructor puts the class through similar exercises which require changes in elevation.

The instructor gives a number of examples which require changes in both windage and elevation, until the principles of sight changing are well understood by the class.

Assume the zero of the rifles to be away from the normal both as to windage and elevation and repeat the exercises.

"Set your sight at 625 yards and with 1½ points of left-windage. Suppose you fire four shots hitting here (place four spotters in the bull's-eye), and your fifth shot goes here (place spotter on 3 space at 11 o'clock). Jones, what are you going to do now? Jenkins, what are your going to do?"

"For your first score in rapid fire at 200 yards you have set your sight at the same elevation and windage that you used in slow fire. Suppose this to be 200 yards elevation and zero windage and your group goes here (putting 10 spotters low and to the left). Set your sight to bring the next score into the figure. Miller, what does Wright's sight read?"

CHAPTER XII.

USE OF SCORE BOOK.

Importance.

Each man should keep a score book in which he records not only the value of the hits, but the location of each hit, the sight setting and sight changes, the force and direction of the wind, the kind of light, the hour, the date, and such other data as may be of use in the future. Spaces for these notes are provided on the score sheets of the score book. Prior to going to the firing point the firer should rule off the windage and elevation correction lines on the miniature target of each score sheet for slow fire.

The use of the score book on the range is important for the following reasons:

The plotting of the shots shows the firer the location of his group.

The Table of Wind Allowances indicates the windage to take for the first shot. The model target shows by means of vertical and horizontal lines the change in elevation and windage necessary to place the group in the center of the target.

Plotting the shots and recording the data as to light and wind help the soldier to learn the zero of his rifle.

The data written down as to sight settings and weather conditions while firing at any range are of great assistance in setting the sight correctly when again firing at that range. Where a number of scores have been fired and recorded, the firer should get his sight settings from previous scores fired on days that were similar as to light and wind.

The score book should be kept personally by the man firing. The coach assists him when necessary to decide what to write down, but the coach should neither plot the shots nor enter any data.

Score-Book Exercises.

The squad or larger group is assembled in front of a full-sized B target, each man with score book, pencil and rifle. The class is divided into pairs. Each man acts as coach for the other man of his pair.

The instructor states the light and weather conditions and the range. He then indicates 10 successive shots on the target by means of a spotter and requires each man to plot each shot as it is indicated, write down the data given from time to time, and make the actual sight settings and corrections on his rifle. Weather and light conditions assumed by the instructor and changes announced during the exercise should be such as are likely to occur on the rifle range.

The pupils are told by the instructor to open their score books at the first blank page and plot the shots and write in the data as given to them. They are further instructed to write lightly so that erasures may be made allowing the same page to be used again. The example as given will be substantially as follows:

"You are at 600 yards on the rifle range. You are getting ready to fire a slow-fire score. There is bright sunlight. The wind varies from 8 to 12 miles an hour in velocity and from 1 to 3 o'clock in direction. When you are in position ready to fire your first shot, the wind seems steady at 3 o'clock and blowing about 8 miles an hour. Write in your data and set your sights. Jones, where has Robinson set his sight? Williams, where has Smith set his sight? You should have a scant point and a quarter of right windage.

"You fire your first shot and the spotter marks it here (put spotter a close 4 at 7 o'clock). Decide what you are going to do and set your sights. Dodd, what does McLean's sight read? You should have moved your sight about one-fourth point to the right and raised it 25 yards, so that your sight should read 625 yards and a scant 1½ or a strong 1¼ of right windage.

"Your second shot goes here (spotter near center of bull's-eye); your third shot goes here (spotter in bull's-eye near the top); your fourth shot goes here (spotter in bull's-eye near the bottom); your fifth shot goes here (close 4 at 9 o'clock). The wind seems to be a little stronger, but you are not sure. You think your hold was all right, but you are not absolutely certain. Johnson, what are you going to do?" "I would take half the correction called for by the model target." "Set your sight accordingly. You should have about 1¾ points of right windage now. Your sixth shot goes here (a bull's-eye near the outer edge at 3 o'clock). Malone, what are you going to do? The 4 on the fifth shot must have been due to an error in aim or trigger squeeze so put your sight back to where it was before (1½ points).

"Before you fire your seventh shot you notice that the wind has shifted to about 1 o'clock but still blowing the same rate. Wilson, where has Simpson

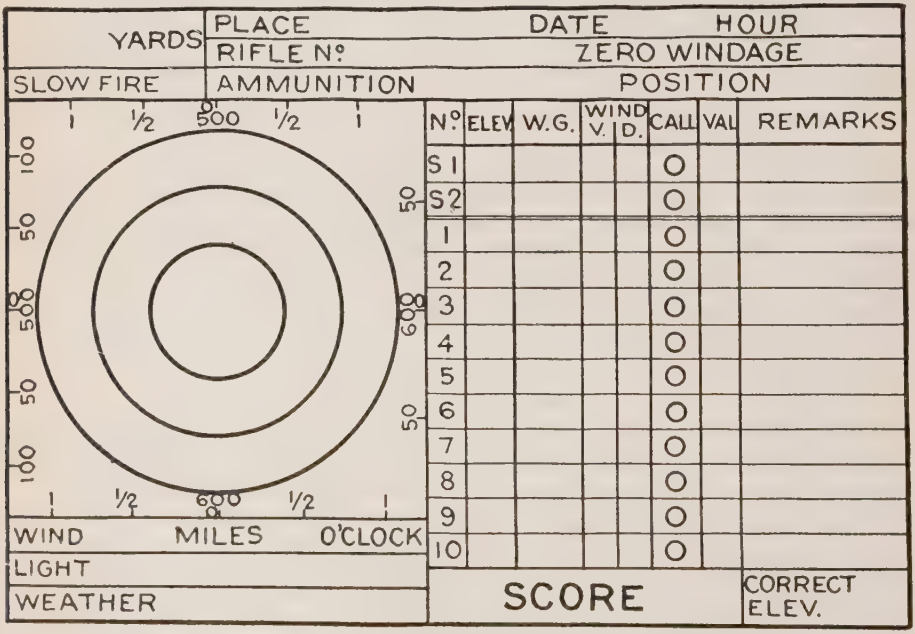


Plate 24. Model Recording Sheet, 500 and 600 Yards Slow Fire.

set his sight now? Billings, what does the book say about a 1 o'clock wind? You need half as much windage as for a 3 o'clock wind. You should now have three-fourths point of right windage. Set your sight there.

"Your next shot goes here (a wide 4 at 6 o'clock). Collins, what correction has Brown made for his eighth shot? You should have made no change in your sight. Your windage is apparently correct and there has been no change in the conditions. Your low shot was due to a poor aim or a poor trigger squeeze. Don't try to correct your personal errors by moving your sight around. Your eighth shot goes here (bull's-eye); your ninth shot here (bull's-eye); your tenth shot goes here (bull's-eye). Write in your notes and exchange books with your team mate. Smith, has Williams plotted all the shots correctly? Read the notes he has written in his book."

The instructor corrects mistakes and wrong ideas and makes a note of the pupils needing additional instruction.

CHAPTER XIII.

FIFTH STEP. EXAMINATION OF MEN BEFORE STARTING RANGE PRACTICE.

There is no set form for these questions, and those which follow are merely illustrative. The instructor may put the questions in his own words, but they should be searching enough to bring out the man's knowledge of every important item in firing.

Draw for me a picture of a peep sight. (The pupil draws a circle on paper or on the ground.)

Now show me how the front sight looks, through the peep, when the sights are properly aligned.

Is there any other correct alignment?

Draw the outline of the bull's-eye as it appears through the sight when you are aiming correctly.

What is this device called? (Exhibiting a sighting bar.)

Tell me what each part of this bar represents.

Set the sights and target to show a correct aim. (On the sighting bar.)

Is this a correct aim? What is wrong with it? (The instructor sets the sights on the bar with small errors and requires the pupil to tell what the errors are.)

Draw a picture of an open sight and show me the proper position of the front sight.

What is the purpose of making sighting triangles or shot groups?

If your shot group is very wide, from side to side, what does this indicate?

If the shot group is high, from top to bottom, what does this indicate?

Why do we make shot groups first at short range and then at long range?

Why do you blacken your sights?

How is it done?

Take this rifle and show me the adjustments of the sling.

Why do you stop breathing while aiming?

How do you hold your breath?

What happens when a man jerks the trigger in firing?

How is this trouble avoided?

When do you squeeze the trigger?

When do you stop squeezing it?

What do you understand by "calling the shot?"

What must you do in order to be able to call your shot?

Can you call your shot if you do not squeeze the trigger properly? Why?

What is this device and how is it used? Place it on the rifle. (Instructor hands the pupil an aiming device.)

Now watch my aim through the aiming device and tell me what is wrong with it. (Instructor introduces small errors in his aim to see if the pupil can discern them.)

Call these shots for me. (Instructor simulates firing at a bull's-eye and the pupil calls the shots.)

Demonstrate to me each of the authorized positions for firing, using your sling.

I shall take these positions and you point out my errors. (Instructor assumes faulty positions, demonstrating the common mistakes to see if the pupil notices them.)

Now lie down again and aim at the bull's eye. (Instructor verifies pupil's aim, with aiming device.)

Aim, squeeze your trigger and call your shots. (Instructor verifies pupil's aim, trigger squeeze, and ability to call his shots.)

Demonstrate to me how to assume each of the positions rapidly from a stand.

Is the trigger squeeze in rapid fire different from that in slow fire?

How do you avoid loss of time in rapid fire?

How many shots should you be able to fire in one minute?

Now take the rifle and demonstrate to me the procedure of rapid fire in a prone position, aiming at that target. (Instructor gives the commands and verifies the procedure. Dummy cartridges may be used.)

(The same exercise should be given in the other positions.)

If you are acting as coach for another man what position do you take and what do you watch?

What points especially should a coach observe: In position exercises? In trigger squeeze exercises? In bolt operation exercise? In slow fire? In rapid fire?

Explain to me what each thing on this page means. (Instructor exhibits page of a score book and causes student to point out the target, windage and elevation lines, and the various entries, and to explain the purpose of each.)

You have fired a shot with 500 yards elevation and ½ point left windage. It struck here (making a mark on the miniature target). What change would you make in your sights for the next shot? (This exercise is repeated until the instructor is satisfied that the pupil fully understands sight setting. The same exercise may be held on a full sized target, using a spotter.)

You fired a string at rapid fire and your shots struck thus. (Instructor plots an assumed shot group.) What change would you make in your sight setting for the next string?

Plot these data in your score book. (Instructor calls certain assumed data and several shots, and pupil plots same in his book.)

How do you describe the direction and force of the wind on the target range?

You are firing at 500 yards. There is a two o'clock wind blowing 8 miles an hour. How would you set your sights for the first shot? (This question may be repeated with change of data.)

What is the wind rule?

What is the wind gauge rule?

What is the elevation rule?

What is mirage and what information can you get from it?

What effect has light on your aim?

Explain to me what is meant by the zero of a rifle. How do you find it?

What safety precautions are observed in firing the rifle?

Explain to me exactly how to clean a rifle after firing on the range.

Explain to me exactly how to clean and protect a rifle when not in use for firing.

CHAPTER XIV.

SMALL-BORE PRACTICE.

Small-bore, or gallery, practice is conducted on 50-foot or 75-foot ranges, either indoors or outdoors, with targets appropriately reduced in size, using the caliber .22 rifle.

Purpose. Small-bore practice follows the preparatory exercises and applies the principles taught therein to marksmanship training with small-bore (caliber .22) arms and ammunition. It should precede any range firing.

Small-bore practice provides a means of improving marksmanship and of sustaining interest in rifle firing throughout the year. It also gives the instructor an opportunity to determine just how much progress in marksmanship each man has made. Extra effort should be devoted to those who are deficient. A man who cannot fire a small-bore rifle satisfactorily will be even more deficient in range firing.

Value. The chief value of small-bore practice is that it is convenient, interest sustaining and economical. Also in many educational institutions and army posts no full distance outdoor range is available. Small-bore practice has not the value of range practice because it is less realistic by reason of the short range, lack of weather effects and the absence of recoil. But it is often a valuable step between preparatory instruction and range practice. Small-bore practice may be carried on when a rifle range is not available, and it can be conducted throughout the year, regardless of weather conditions.

Small-bore competitions are to be encouraged.

Procedure. Small-bore practice should be properly organized, supervised and controlled. Every man must be given a thorough course of preparatory instruction before he is permitted to fire on the small-bore range. Throughout small-bore practice, emphasis must be placed upon correct shooting methods, and

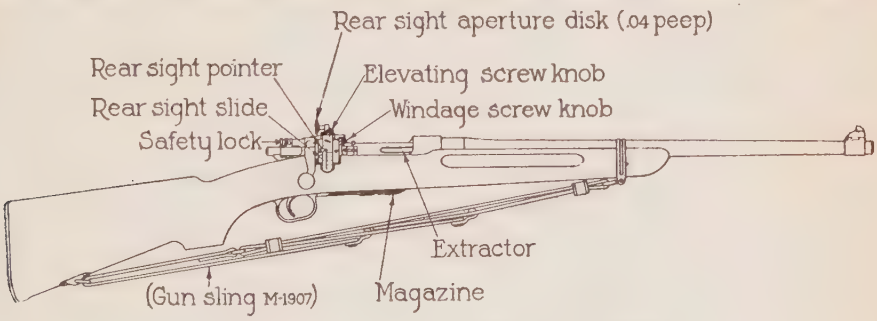


Plate 25. U. S. Rifle, Caliber .22, M1922MI.

exactness in doing each of the essentials learned during preparatory instruction. Accordingly, a man should be carefully coached while firing on the small-bore range, and each man engaged in small-bore practice must be familiar with the duties of a coach.

Duties of the Coach in Small-Bore Practice. The coach should take the same position as the man who is firing—prone, sitting, kneeling or standing—so as to be able to watch his trigger finger and eye. (See Plate 28.) He watches the pupil and not the target. He pays particular attention to the following points, in addition to those listed at the end of Chapter V.

That the sights are set correctly.
That the ammunition is clean.
That the rifle is loaded in the correct manner.
Whether or not the pupil flinches (watch his eye).
That the trigger is squeezed correctly.
That the pupil calls his shot each time he fires.

Safety Precautions. In gallery practice, the same precautions for safety must be taken as during range practice. (See Chapter XV).

Small-Bore Rifle. U. S. Rifle, cal. .22, M1922MI (Plate 25), is the only rifle now issued for small-bore practice. It is a breech-loading magazine rifle of the bolt type. The bolt operation is exactly like that of the caliber .30 service rifle. The bolt is fitted to each rifle and should not be exchanged. The magazine will hold five cartridges, which are loaded singly into the magazine. Only the

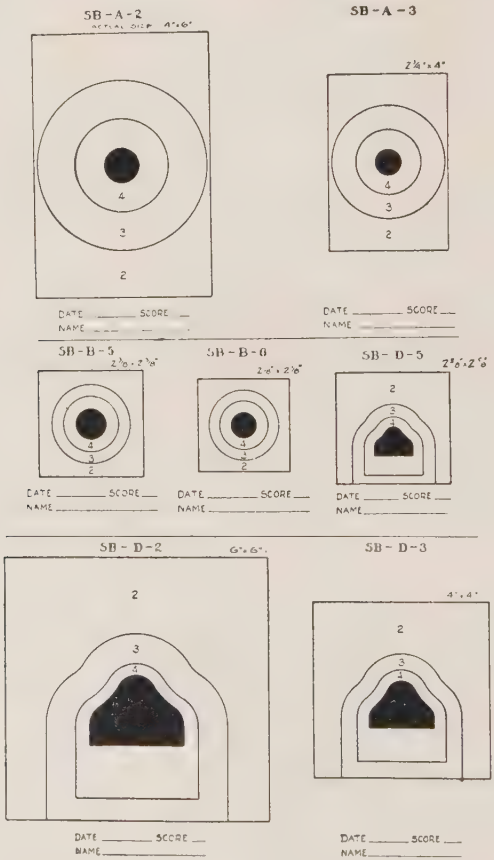


Plate 26. Small-Bore Targets.

caliber .22 *long rifle* cartridge, for which the rifle is specially chambered, should be used. The elevation knob has 10 graduations. One click or half minute of angle corresponds to one graduation; a change of one graduation on the knob causes a vertical change at the point of impact at 50 feet of 0.08 inch. Similarly, one click on the wind-gauge screw knob will change the point of impact horizontally 0.08 inch at 50 feet. It is recommended that two or three fouling shots be fired to warm the barrel before beginning a score.

Targets. The targets prescribed for the small-bore course are illustrated in Plate 26. It will be noted that there is a small-bore target corresponding to each

target and range included in Course A. Thus target SB-A-2 compares with the A target at 200 yards; SB-A-3, the A target at 300 yards; SB-B-5, the B target at 500 yards; SB-B-6, the B target at 600 yards; SB-D-2, the D (rapid fire) target at 200 yards; SB-D-3, the D target at 300 yards; and SB-D-5, the D target at 500 yards.

Small-bore competitions are often held using the National Rifle Association

Plate 27. National Rifle Association Gallery Target.

gallery targets, both at 50 feet and at 75 feet. The latter target is illustrated in Plate 27.

SMALL-BORE COURSE.

Tables for instruction practice and record practice of the small-bore course, showing targets and firing positions, on the 50-foot range, follow:

A. Instruction Practice.

TABLE I. SLOW FIRE. (RANGE 50 FEET.)

Time.	Shots.	Target.	Position.
No limit	10	SB-A-2	Prone.
No limit	10	SB-A-3	Do.
No limit	10	SB-B-5	Do.
No limit	10	SB-B-6	Do.

TABLE II. SLOW FIRE. (TO BE FIRED AT LEAST TWICE.) (RANGE 50 FEET.)

Time.	Shots.	Target.	Position.
No limit	10	SB-A-2	Standing.
No limit	5 sitting 5 kneeling	SB-A-3	Kneeling and sitting.
No limit	10	SB-B-5	Prone.

TABLE III. RAPID FIRE. (TO BE FIRED AT LEAST 3 TIMES.) (RANGE 50 FEET.)

Time.	Shots.	Target.	Position.
30 seconds, each string	2 strings, 5 shots each.	SB-D-2	Standing to sitting.
40 seconds, each string	2 strings, 5 shots each.	SB-D-3	Standing to prone.
45 seconds, each string	2 strings, 5 shots each.	SB-D-5	Prone.

Such additional instruction firing as ammunition permits.

B. Record Practice.

TABLE IV. SLOW FIRE. (RANGE 50 FEET.)

Time.	Shots.	Target.	Position.
No limit	10	SB-A-2	Standing.
No limit	5 sitting 5 kneeling	SB-A-3	Kneeling and sitting.
No limit	10	SB-B-5	Prone.
No limit	10	SB-B-6	Do.

TABLE V. RAPID FIRE. (RANGE 50 FEET.)

Time.	Shots.	Target.	Position.
30 seconds, each string	2 strings, 5 shots each.	SB-D-2	Standing to sitting.
40 seconds, each string	2 strings, 5 shots each.	SB-D-3	Standing to prone.
45 seconds, each string	2 strings, 5 shots each.	SB-D-5	Prone.

CHAPTER XV.

RANGE PRACTICE.

Instruction and Record.

Range practice is divided into two parts:

1. Instruction practice which represents the application with service ammunition of the principles taught in the preparatory exercises. During instruction practice the soldier works under the supervision of a coach.

2. Record practice in which the soldier fires for qualification as a test of his ability as a rifleman. Coaching is prohibited during the firing for record. No assistance of any kind may be given the man firing except the adjustment of the sand bag for the first shot at 600 yards.

Importance of Correct Trigger Squeeze.

Any man who is physically fit to be a soldier and who has had a proper course of preparatory instruction can aim and hold well enough to make a score of over 40. Scores that are under 40 are nearly always due to pressing the trigger incorrectly. The coach therefore will concentrate his attention on the trigger squeeze. He of course checks the position, the aiming, and the holding of the breath from time to time to see that the instruction on these points has not been forgotten, but by far the greatest amount of the coach's time will be devoted to requiring the pupil who is firing to press the trigger so steadily as not to know exactly when the discharge will take place.

It can always be proven to the pupil that he will be a good shot as soon as he learns to press the trigger properly, by having the coach press the trigger while the man under instruction holds and aims the rifle. Shots fired in this way from either the sandbag rest position or the prone position are almost always well placed. This is a very valuable method of coaching poor shots and is often a means of improving the scores of men who are classed as good shots.

Sandbag Rest. The sandbag rest is used at the beginning of the course, not to teach steadiness of hold, but to facilitate instruction in the proper method of pressing the trigger. The sandbag assures such a steady hold that the temptation to the beginner to snap in his shot at the instant the sight touches or drifts past the bull's-eye, is eliminated. With the sandbag rest the sights can be held fixed at the bottom edge of the bull's-eye, while the firer squeezes the trigger with such a steady pressure as not to know exactly when the rifle will go off. The habit of correct trigger squeeze, having been acquired by firing with a sandbag rest, will in all probability be retained.

Pads. Because of the effect of recoil men are required to wear pads on the right shoulder and upper arm, where the butt of the piece rests. If the ground is hard there should also be pads on the elbows. A pad can be made of any soft resilient fabric. It should be thick enough to afford real protection. Pads may be placed inside the shirt, loose or pinned to the garment. It is better to have the pads sewn on the outside of the shirt and covered with soft leather. They should be large enough to allow for changes in their positions, relative to the areas they are to protect. After a little hardening as a result of practise, most men can dispense with the pads. They should be worn for the first three or four days and may be worn throughout the period of range practise.

Pads which give artificial support to the rifle are prohibited. That is, a shoulder pad which retains the butt of the rifle in the proper position against the shoulder or an arm pad which holds the sling in its place on the arm, may not be used.

Coaching.

Except during fire for record each man should have a coach beside him whenever he fires (see Plate 28). The duty of the coach is to watch every detail of the firing, note mistakes and help the firer to correct them. Every soldier should learn to coach as well as to shoot. It is not possible that every man can have an expert coach.

It is good practice to have expert coaches (officers or experienced men) in charge of one or more targets, usually on a flank, to which particularly backward pupils are sent for special coaching.

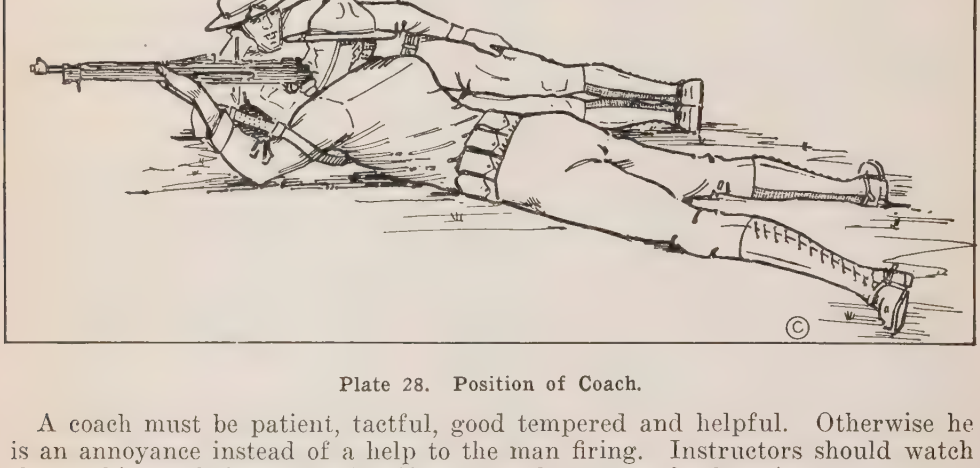


Plate 28. Position of Coach.

A coach must be patient, tactful, good tempered and helpful. Otherwise he is an annoyance instead of a help to the man firing. Instructors should watch the coaching and change coaches if good results are not forthcoming.

Watching the Eye. We have explained heretofore that when a man jerks the trigger instead of squeezing it properly, he instinctively closes his aiming eye just before the piece goes off, in anticipation of the shock of recoil. Accordingly this most serious of all faults, jerking the trigger, can be discovered by watch-

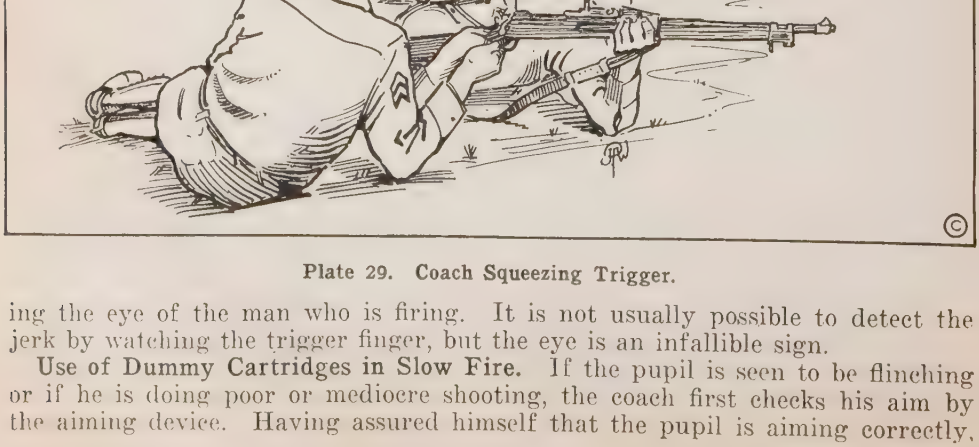


Plate 29. Coach Squeezing Trigger.

ing the eye of the man who is firing. It is not usually possible to detect the jerk by watching the trigger finger, but the eye is an infallible sign.

Use of Dummy Cartridges in Slow Fire. If the pupil is seen to be flinching or if he is doing poor or mediocre shooting, the coach first checks his aim by the aiming device. Having assured himself that the pupil is aiming correctly,

the coach has him turn his head aside while he, the coach, puts in a cartridge and shoves the bolt home. Occasionally the coach loads in a dummy cartridge instead of a live one without letting the pupil know what he has done. Then the flinch, indicated by the shoulder being shoved forward at the same time that the trigger is pressed, will be evident even to the firer himself. The coach then proves to him, by squeezing the trigger a few times, as explained in the next paragraph, that his poor shooting is due to faulty trigger squeeze.

Coach Squeezing the Trigger. To squeeze the trigger for the firer the coach lies with his right elbow on the ground to steady his hand, places his thumb against the trigger and his first finger against the back of the trigger guard. In this way he can apply pressure to the trigger by a pinching action of his thumb and first finger. (See Plate 29.)

The coach then watches the firer's back, and between 5 and 10 seconds after the firer begins to hold his breath he applies enough pressure to discharge the piece. Shots fired in this way are almost always accurately placed. After discharging the piece a few times the coach lets the firer try a few shots alone to see if he can press the trigger the same way the coach pressed it, so as not to know just when the rifle will go off. Sometimes it is necessary to repeat this exercise, but the majority of beginners can be permanently cured of the tendency to flinch by a few minutes of this kind of coaching. Old shots who are flinchers require more time and patience.

Duties of the Coach in Slow Fire.

The coach observes the pupil carefully and corrects all errors. He pays particular attention to the following points, in addition to those listed at the end of Chapter V:

That the sights are set at the correct range.

That the ammunition is free from dirt.

That the pupil has the body at the proper angle, elbows correctly placed and cheek pressed firmly against the stock.

That the magazine is loaded from a clip in the correct manner.

Whether or not the pupil flinches (watch his eye).

That the pupil calls his shot each time he fires.

That the pupil keeps his score book correctly.

Hints to Men Firing.

The following precautions should be read over each time before going to the firing point:

Be sure both the front and rear sights of your rifle are properly blackened.

Use your score book to obtain the data to set your sight for the first shot, and set your sight accurately.

Aim carefully, squeeze the trigger properly, and note where the piece was aimed at the instant of discharge. Call the shot to your coach. If the bullet does not strike where you aimed you can then intelligently change your sight. But unless you can call your shot it is useless to change the sight. In this case try another shot with the same setting.

Always aim at the bottom edge of the bull's-eye for all shots. Never try to make a bullet hit closer to the bull's-eye by changing the aiming point. When you wish to change the hitting place of the bullet, do so by changing your rear sight.

Do not change your windage until you have looked at your score book to find out how much of a change you need; then look at your wind gauge to see how much windage you have before you start to make the change.

Keep your own record of firing, plotting every shot on the miniature target in the score book. By doing this you can see where your shots have struck and the general tendency of your errors. If the center of the shot group is not at

the center of the bull's-eye change the sights so as to bring it there. Base these changes on several shots rather than one only. If several shots have struck near the bull's-eye and one suddenly goes wild it is better to disregard this one shot as it was *probably* your own fault and not due to a large error in sight setting.

Importance of Rapid-Fire Training.

The true value of a soldier as a rifle shot depends upon his ability to deliver rapid fire, or more properly speaking, continuous fire, accurately. The tendency to jerk the trigger, and consequently to flinch, is very strong in rapid fire. This tendency must be corrected before it can become a fixed habit. Constant vigilance and attention to every detail by the coach is an absolute requisite.

Use of Dummy Cartridges in Rapid Fire. The tendency to flinch is eliminated by using clips in which half the cartridges are range dummy. The dummy and live cartridges are put into the clips by the coach in such a way that the pupil cannot know which will go off and which will not. Then if he is not squeezing the trigger with a steady pressure he will flinch, or shove the shoulder forward to meet the shock, when there is a dummy in the chamber and no shock occurs. The flinch is then apparent to the coach and to the man doing the flinching. The result is that he makes a determined effort to squeeze the trigger with a steady pressure for all shots, so as not to appear foolish both to the observers and to himself. During this kind of practice the coach must watch the firer closely to see that he does not look into the chamber in an attempt to see which cartridges are loaded and which are dummies. If he is allowed to look into the chamber while working the bolt the value of the practice is lost and a very bad shooting habit is acquired.

Range dummy cartridges, very similar in appearance to the service ammunition, are issued by the Ordnance Department for this purpose. They are issued to use on the rifle range with loaded cartridges, and this is the only use of them which is permitted. Practice dummy cartridges of such shape and color as to be readily distinguished from the service cartridge should be used in all other exercises requiring the use of dummy cartridges.

It is advisable to have each order, when it comes to the firing point, simulate a score of rapid fire, using dummy cartridges or having the cut-off turned down.

Use of Spotters in Rapid Fire. Spotters showing where each shot struck are very useful in rapid fire. They show the man firing his whole shot group at a glance. He should plot this group in his score book, mark its center, and correct his sight setting to bring the center of his group onto the bull's-eye in his next string. Spotters are an article of issue, but if there be not enough of them they are easily improvised in various ways.

Duties of the Coach in Rapid Fire.

The coach observes the pupil carefully and corrects all errors. He pays particular attention to the following points, in addition to those listed at the end of Chapter V:

That the sights are set at the proper range.

Whether or not the pupil flinches (by watching his eye).

That he works the bolt rapidly.

That while working the bolt he keeps his eye on the target, the rifle to his shoulder, and his elbows in place.

That he reloads the magazine from a clip properly and quickly.

These operations follow each other, and the coach can watch each in turn. The coach will also at times watch the pupil's back to see if he holds his breath while firing each shot. In the case of a difficult pupil, it is advisable to have two coaches watch him fire.

Any lack of a smooth and rapid bolt operation indicates that the preparatory

training has not been sufficient, and additional preparatory rapid-fire practice should be given.

Marking, Slow Fire.

The value of the shot is indicated as follows:

A bull's-eye, with a white disc.

A four, with a red disc.

A three, with a black and white disc.

A two, with a black disc.

A miss, by waving a danger flag across the front of the target.

A ricochet hit, by displaying the ricochet flag and at the same time marking the hit with the appropriate disc.

The exact location of the hit is indicated by placing in the shot hole a spotter of size appropriate to the distance from the firing point. The center of the marking disc is placed over the spotter in signaling hits.

Marking, Rapid Fire.

The same discs are used to indicate the value of hits as in slow fire.

Spotters are placed in the shot holes before the target is run up for marking.

The marking begins with the hits of highest values, the center of the disc being placed over the spotter, then swung off the target and back again to the next spotter, care being taken each time to show only the face of the disc indicating the value of the shot being marked. The marking should be slow enough to avoid confusing the scorer at the firing point. When one spotter covers more than one shot hole, the disc is placed over it the required number of times. Misses are indicated by slowly waving the red flag across the face of the target one time for each miss.

Safety Precautions.

As soon as men report on the range, the bolt of each rifle should be opened and thereafter kept open, except when the man is at the firing point. A rifle should never be pointed at anyone at any time. A loaded rifle at the firing point should be kept pointed toward the targets.

The bore should be wiped out with a clean cloth patch each time before going to the firing point. It is dangerous to fire a rifle with dirt, mud, a patch, or other obstruction in the bore, or with anything in the muzzle.

Rifles should not be loaded in rear of the firing line. In rapid fire, pieces at the firing point should not be loaded until the command is given by the officer in charge.

COURSES AND QUALIFICATIONS.

In all instruction practice, begin with slow fire in the sandbag rest position and go next to slow fire in the prone position without the sandbag. The first 10 shots in rapid fire at each range should be fired in two scores of two clips each, the clips for each score containing five range dummies and five ball cartridges mixed. As much instruction practice may be given as time and ammunition allowances will permit.

The tables for the record practice of the courses which are most commonly fired, are as follows:

Course A. Record Practice.

SLOW FIRE.

Range.	Time.	Shots.	Target.	Position.
200	No limit	10	A	Standing.
300	do	10	B	5 sitting, 5 kneeling.
500	do	10	A	Prone.
600	do	[1] 10	B	Prone with sandbag.

[1] Two sighting shots (2 s. s.) allowed at 600 yards.

RAPID FIRE.

Range.	Time.	Shots.	Target.	Position.
200	1 minute	10	D	Sitting or kneeling from standing.
300	1 minute, 10 seconds	10	D	Prone from standing.
500	1 minute, 20 seconds	10	D	Prone.

Course D. Record Practice.

SLOW FIRE.

Range.	Time.	Shots.	Target.	Position.
200	No limit	10	A	Prone.
200	.. do	10	A	5 sitting, 5 kneeling.
200	.. do	10	A	Standing.

RAPID FIRE.

Range.	Time.	Shots.	Target.	Position.
200	1 minute	10	D	Prone from standing.
200	.. do	10	D	Kneeling or sitting from standing.

Qualification Scores.

The minimum aggregate scores required for qualification in these courses are as follows:

Course.	Expert rifleman.	Sharp-shooter.	Marks-man.
A	306	290	240
D	224	214	190
Small bore	320	305	270

CAVALRY DRILL.

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CAVALRY DRILL

INTRODUCTION

Disciplinary Value of Drill. This course includes dismounted movements and mounted ceremonies which are executed in a precise manner; they teach *exact obedience* and are the foundation for all subsequent training in which the soldier is taught to exercise his initiative in intelligently carrying out the will of his superior. Obedience to superior authority does not imply an undue restriction of individual initiative. There is no activity in which individual judgment and initiative find so large a field for their exercise as in military operations. Nor is there a heavier responsibility than that which rests upon the commander-in-chief of a great army. His burden is lessened, however, if he knows that under his command is a well-drilled and disciplined force.

Experience has shown that obedience to a single will is necessary to success in war. This obedience should not be the blind obedience of an automaton; it must be reasoning and intelligent, loyal and enthusiastic, positive and immediate. It must seek to understand the expressed or implied instructions of the superior, and to carry them out with vigor and determination. Where the means to an end are not pointed out, then by the use of initiative the best course to be followed must be sought and adopted. This type of loyal and intelligent obedience we call discipline. While intelligence can be stimulated, initiative fostered, loyalty encouraged, obedience must be taught. Neatness in dress, smartness in carriage and appearance, careful observance of military courtesy and orderly conduct at all times, are evidences of this training. The military man learns obedience in a variety of ways, of which one of the most important is Drill.

Close-Order and Extended-Order Drills. Drill is of two kinds: Close-order drill and extended-order drill.

Close-order drill, dismounted, being precise and exact to a high degree, is valuable as disciplinary training. Close-order drills are always executed at **Attention.** A soldier at **Attention** is mentally and physically alert, and ready to obey promptly any orders from his military superiors. Close-order drills and ceremonies, such as parades and reviews, have a very definite purpose in the training of the soldier. Their object is to teach precise movements and to inculcate the "habit of obedience" which is the hall mark of the soldier.

Extended-order drill is not designed primarily as disciplinary drill. It is designed to teach formations and movements applicable to combat. Its formations are decidedly elastic as to intervals and distances between elements. It is not executed in a precise manner. Extended-order drill is executed **At ease.** For best results it should frequently be conducted over varied terrain where energy, boldness and initiative should be given much latitude.

Instruction in Drill. Drills may be mounted or dismounted. They should be varied to sustain interest. Disciplinary drills should be frequent and short. Full use should be made of drill in *command* and of the *coach and pupil* method of instruction. The instructor will maintain a military bearing, and by a quiet, firm demeanor set a proper example to those being instructed. A calm and even temper is indispensable. Unnecessary loud commands and prolonged explanations are to be avoided. Leaders will give clear and reasonable explanations, treat all subordinates with courtesy and firmness, and correct mistakes without harshness.

Cavalry Drill differs from the drill of dismounted branches of the service in that it also includes mounted drills and drills with cavalry weapons. The training of the trooper must include instruction with the rifle, pistol, machine rifle and saber. Drill with these weapons is included in this course. Additional instruction in weapons is given in the course in Cavalry Weapons. The trooper's mount must be trained as well as the trooper, often at the same time. This instruction is covered in the course in equitation.

Commands. Commands only are employed in close-order drill at attention. In this text a command is the will of the commander expressed orally and in prescribed words. There are two kinds of commands: The *preparatory dommand,* such as **Forward,** which indicates the movement to be executed; and the *command of execution,* such as **MARCH, HALT,** or **ARMS,** which causes the execution. Distinct, animated commands are essential to good drill. The better the commands, the better will be the drill.

In Chapter I of the course in Physical Training, instruction is given in the proper use of the voice in giving commands. In dismounted disciplinary drills, it is of great importance that the command of execution be staccato. In mounted drills, it is desirable that the command of execution be drawn out.

CAVALRY DRILL

CHAPTER I.

DISMOUNTED WITHOUT ARMS.

General Rules.

Duties of Instructor. The instructor explains briefly each movement, first executing it himself. He requires the recruits to take the proper positions unassisted and touches them only for the purpose of correction, when they are unable to correct themselves. He avoids keeping the recruits too long at any movement. Each movement should, however, be understood before passing to another. The instructor exacts by degrees the desired precision and uniformity.

Grouping Recruits. To permit of more individual instruction, recruits are separated into groups, each group being as small as is consistent with the number of trained instructors available. Each group is then formed in single rank, or is divided into 2 ranks, depending upon the number of men in the group and the nature of the instruction.

As instruction progresses, the recruits are grouped according to proficiency, those showing a lack of aptitude and quickness being separated from the others and placed under the most experienced drill masters.

ELEMENTARY INSTRUCTION.

Position of the Soldier, or of Attention. Heels on the same line and as near each other as the conformation of the man permits.

Feet turned out equally and forming an angle of 45°.

Knees straight without stiffness.

Hips level and drawn back slightly; body erect and resting equally on hips; chest lifted and arched; shoulders square and falling equally.

Arms hanging straight down without stiffness, so that the thumbs are along the seams of the trousers; backs of the hands out; fingers held naturally.

Head erect and squarely to the front; chin drawn in so that the axis of the head and neck is vertical; eyes straight to the front.

Weight of the body resting equally on the heels and the balls of the feet.

In assuming the position of the soldier, or of attention, the heels are brought together smartly and audibly. (See Plate 1).

Rests. Being at a halt, the commands are: ***FALL OUT; REST; AT EASE;*** 1. *Stand at,* 2. ***EASE;*** and 1. *Parade,* 2. ***REST.***

At the command *Fall out,* the men leave the ranks, but are required to remain in the immediate vicinity. The men resume their former places at attention at the command *Fall in.*

At the command *Rest,* the right foot is kept in place, but silence and immobility are not required.

The command being *At ease,* keep the right foot in place. Silence but not immobility is required.

The command being 1. *Stand at,* 2. ***EASE,*** at the command ***EASE,*** move the left foot smartly 12 inches to the left of the right foot; at the same time, clasp the hands behind the back, palms to the rear, thumb and fingers of the right hand clasping the left thumb, without constraint. Preserve silence and immobility, except that the head and eyes may be turned toward the instructor or unit commander. This command is given when it is desired to maintain a uniform appearance of the organization. (See Plate 2).

Parade Rest. At the command, 1. ***Parade,*** 2. ***REST,*** carry the right foot 6 inches straight to the rear, left knee slightly bent, weight of the body equally distributed on both feet; at the same time, clasp the hands, without constraint, in front of the center of the body, fingers joined, left hand uppermost, left thumb clasped by the thumb and forefinger of the right hand; preserve silence and immobility. (See Plate 4).

Being at any of the rests, to resume the attention: 1. ***Squad,*** 2. ***ATTENTION.*** Take the position of the soldier.

Eyes Right or Left. 1. ***Eyes,*** 2. ***RIGHT (LEFT),*** 3. ***FRONT.*** At the command ***RIGHT,*** each man turns his head to the right, except the guide and, when in line, the man on the right in the rear rank and the man on the right in line of file closers. The eyes are fixed on the line of eyes of the men in,

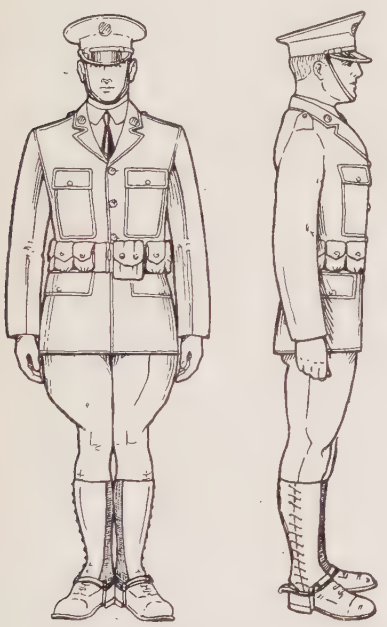


PLATE 1.
Position of the Soldier, or *Attention.*

PLATE 2.
Position of *Stand at Ease.*

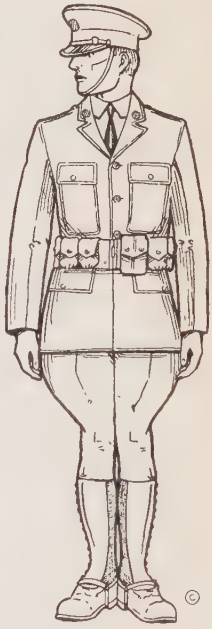


PLATE 3.
Position of *Eyes Right.*

or supposed to be in, the same rank. At the command ***FRONT,*** turn the head and eyes to the front. (See Plate 3).

Facings. Execute all facings in the cadence of quick time.

To the flank. 1. ***Right,*** 2. ***FACE.*** Raise slightly the left heel and right toe; face to the right, turning on the right heel, assisted by a slight pressure on the ball of the left foot. Hold the left leg straight without stiffness. ***(TWO)*** Place the left foot beside the right.

Execute left face on the left heel in a corresponding manner.

To the oblique. 1. ***Right (left) half,*** 2. ***FACE.*** Execute half face as above, facing but 45°.

To the rear. 1. ***About,*** 2. ***FACE.*** Carry the toe of the right foot about a half-foot length to the rear and slightly to the left of the left heel without changing the position of the left foot; weight of the body mainly on the heel of the left foot; right leg straight without stiffness. ***(TWO)*** Face to the rear, turning to the right on the left heel and on the ball of the right foot; place the right heel beside the left.

Salute with the Hand. 1. *Hand,* 2. ***SALUTE.*** Raise the right hand smartly until the tip of the forefinger touches the lower part of the headdress or forehead above and slightly to the right of the right eye, thumb and fingers extended and joined, palm to the left, upper arm horizontal, forearm inclined at about 45°, hand and wrist stright; at the same time turn the head and eyes toward the person saluted. (See Plate 5.) (Do not turn the head more than 45° from the front.) ***(TWO)*** Drop the arm to its normal position by the side in one motion, at the same time turning the head and eyes to the front.

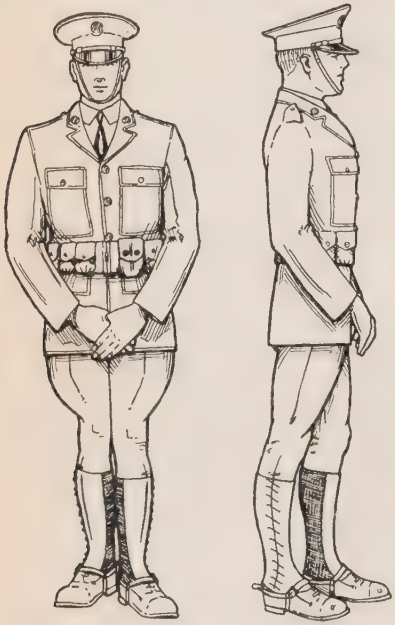


PLATE 4. Position of *Parade Rest.*

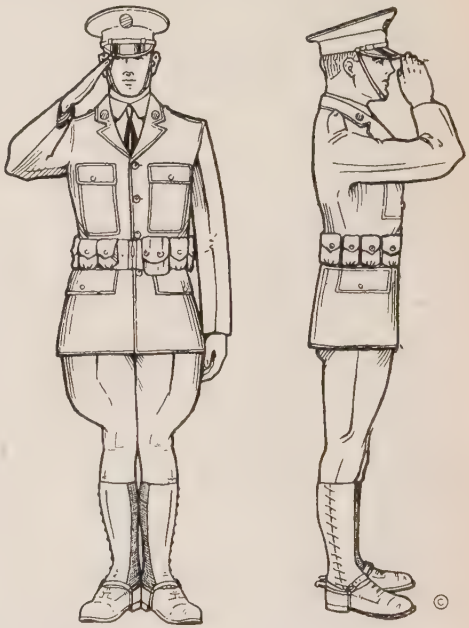


PLATE 5. Position of *Hand Salute.*

Execute the first position of the hand salute when 6 paces from the person saluted, or at the nearest point of approach, if more than 6 paces. Hold the first position until the person saluted has passed, or the salute is returned. Then execute the second movement of the hand salute.

In passing in review at ceremonies execute the hand salute similarly, except that the first position of the salute is held until 6 paces beyond the person saluted. Look the person saluted squarely in the eyes at the first motion of the salute and thereafter hold the head and eyes in the position of *eyes right (left)* until the salute is completed.

STEPS AND MARCHINGS.

General Rules. All steps and marchings executed from the halt, except right step, begin with the left foot.

The length of the full step in quick time is 30 inches, measured from heel to heel, and the cadence is at the rate of 128 steps per minute. The length of the full step in double time is 36 inches; the cadence is at the rate of 180 steps per minute.

The instructor, when necessary, indicates the cadence of the step by calling ***One, two, three, four,*** the instant the left and right foot, respectively, should be planted.

For movements executed toward the right, while in march, the command of execution must be given as the right foot strikes the ground; for movements to

the left, as the left foot strikes the ground. The following are examples of such movements:

RIGHT FOOT	LEFT FOOT
By the right flank	By the left flank
To the rear	Fours left
Fours right	Fours left about
Fours right about	Left turn
Right turn	Left oblique
Right oblique	Platoon left
Platoon right	Column left
Column right	

Quick Time. Being at a halt, to march forward in quick time: 1. ***Forward,*** 2. ***MARCH.***

At the command ***Forward,*** shift the weight of the body to the right leg, without preceptible movement.

At the command ***MARCH,*** move the left foot smartly straight forward 30 inches from the right, sole near the ground, and plant it without shock; next, in like manner, advance the right foot and plant it as above; continue the march. Swing the arms about 6 inches to the front, and about 3 inches to the rear of the body.

Double Time. Being at a halt or in march in quick time, to march in double time: 1. ***Double time,*** 2. ***MARCH.***

If at a halt, at the command ***Double time,*** shift the weight of the body to the right leg without perceptible movement. At the command ***MARCH,*** raise the forearms, fingers closed, knuckles out, to a horizontal position along the waist line; take up an easy run with the step and cadence of double time, allowing a natural swinging motion to the arms.

If marching in quick time, at the command ***MARCH,*** given as either foot strikes the ground, take one step in quick time and then step off in double time.

To resume the quick time: 1. ***Quick time,*** 2. ***MARCH.*** At the command ***MARCH,*** given as either foot strikes the ground, advance and plant the other foot in double time; resume the quick time, dropping the hands by the sides.

To Halt. To arrest the march in quick time: 1. ***Squad,*** 2. ***HALT.*** When marching forward or backward or marking time, at the command ***HALT,*** given as either foot strikes the ground, plant the other foot as in the movement being executed; raise and place the former by the latter. (See Plate 6.)

To arrest the march in double time: 1. ***Squad,*** 2. ***HALT.*** At the command ***HALT*** given as either foot strikes the ground plant the other foot as in double time, then halt in two counts as in quick time.

To arrest the march from side step: 1. ***Squad,*** 2. ***HALT.*** At the command ***HALT*** given as the heels are together, plant the foot next in cadence as in the movement being executed, completing the halt when the heels are next brought together.

To Mark Time. Being in march: 1. ***Mark time,*** 2. ***MARCH.***

At the command ***MARCH,*** given as either foot strikes the ground, advance and plant the other foot; bring up the foot in rear, placing it so that both heels are on line and continue the cadence by alternately raising and planting each foot. The feet are raised 2 inches from the ground.

Being at a halt, at the command ***MARCH,*** raise and plant first the left foot, then the right as prescribed above.

Half Step. 1. ***Half step,*** 2. ***MARCH.*** Take steps of 15 inches in quick time and 18 inches in double time in the same manner as in the full step.

Forward, half step, halt, and ***mark time*** may be executed one from the other in quick or double time.

To resume the full step from half step or mark time: 1. *Forward,* 2. ***MARCH.***

Side Step. The soldier being at a halt or marking time: 1. ***Right (left) step,*** 2. ***MARCH.***

Carry the right foot 10 inches to the right; place the left foot beside the right, left knee straight. Continue in the cadence of quick time.

The side step is used for short distances only and is not executed in double time.

Back Step. Being at a halt or mark time: 1. ***Backward,*** 2. ***MARCH.***

Take steps of 15 inches straight to the rear. The back step is used for short distances only and is not executed in double time.

To Face in Marching. *To face in marching and advance from a halt.*—At the command of execution, turn in the designated direction on the ball of the

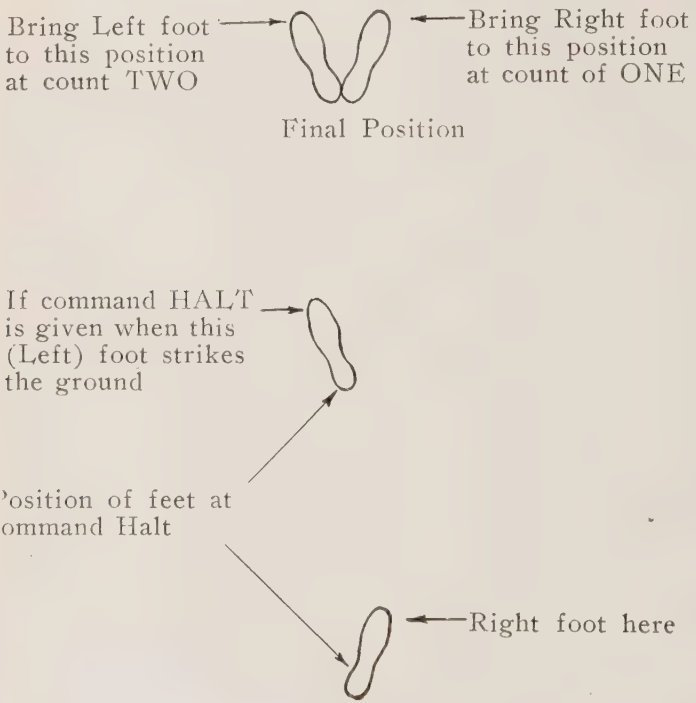

Bring Left foot to this position at count TWO
Bring Right foot to this position at count of ONE
Final Position
If command HALT is given when this (Left) foot strikes the ground
Position of feet at command Halt
Right foot here

Plate 6. Diagram Showing How *Halt* is Executed.

right foot and at the same time step off in the new direction with the left foot with a half step, full step or in double time, as the case may be.

To face in marching and mark time from a halt. Execute the movement similarly, the left foot being placed beside the right as in mark time.

To face to the right in marching and advance, being in march. At the command of execution, given as the right foot strikes the ground, advance and plant the left foot. ***(TWO)*** Turn to the right on the ball of the left foot and at the same time step off in the new direction with the right foot at a half step, full step, or in double time, as the case may be.

To face to the left in marching and advance, being in march. Execute the movement similarly, the command of execution being given as the left foot strikes the ground.

To face to the right (left) in marching and mark time, being in march. At the command of execution, given as the right foot strikes the ground, advance and plant the left foot. ***(TWO)*** Turn to the right on the ball of the left foot;

at the same time raise the right foot and place it beside the left foot as in mark time.

In movements, such as the turn on the fixed pivot at a halt, wherein a definite number of steps is required, the execution of the prescribed face in marching by certain members of the squad is not always possible. For such cases, facing on the ball of either foot is authorized.

To March by the Flank. Being in march: 1. *By the right (left) flank,* 2. *MARCH.*

At the command *MARCH,* given as the right foot strikes the ground, advance and plant the left foot, then face to the right in marching and step off in the new direction with the right foot.

To March to the Rear. Being in march: 1. *To the rear,* 2. *MARCH.*

At the command *MARCH,* given as the right foot strikes the ground, advance and plant the left foot; turn to the right about on the balls of both feet and immediately step off with the left foot. If marching in double time, turn to the right about, taking four steps in place and keeping the cadence, and then step off with the left foot.

To Change Step. Being in march in quick time: 1. *Change step,* 2. *MARCH.*

At the command *MARCH,* given as the right foot strikes the ground, advance and plant the left foot; plant the toe of the right foot near the heel of the left and step off with the left foot.

Execute the change on the right foot similarly, the command *MARCH* being given as the left foot strikes the ground.

Being in march in double time: At the command *MARCH,* given as either foot strikes the ground, take one hop on the next foot and continue the march.

CHAPTER II.

DISMOUNTED WITH RIFLE AND MACHINE RIFLE.

Instruction of Recruit. As soon as practicable the student is taught the use, care, and nomenclature of the rifle. When fair progress has been made in the instruction without arms, he is taught the manual of arms. Instruction without arms and with arms should alternate.

Rules Governing Carrying of the Rifle.

The rifle is not carried with cartridges in either the chamber or the magazine except when specifically ordered. When so loaded or when supposed to be loaded, it is habitually carried locked; that is, with the *safety lock* turned to the *safe.* At all other times it is carried unlocked, with the trigger pulled.

Whenever troops are formed under arms, pieces are immediately inspected at the command: 1. ***Inspection,*** 2. ***ARMS.*** A similar inspection is made before dismissal. If cartridges are found in the chamber or magazine, they are removed and placed in the belt.

The cut-off is kept turned off except when cartiridges are actually used. (Applicable to troops armed with U. S. Rifle, Model 1903.)

Fall in is executed with the rifle at the order arms.

If at the order, unless otherwise prescribed, the rifle is brought to the right shoulder at the command ***MARCH*** (in quick time), the 3 motions corresponding with the first 3 steps. If ***Double time*** is given prior to ***MARCH,*** the unit is brought to the ***Right (left) shoulder*** or ***Port arms,*** before the command ***Double time.***

Movements may be executed at the *trail* by prefacing the preparatory command with the words ***at trail;*** as 1. ***At trail, forward,*** 2. ***MARCH.*** The trail is taken at the command ***MARCH.***

When the facings, alignments, open and close ranks, side step and back step, taking interval and assembly are executed from the order, the rifle is brought to the trail while in motion and the order resumed on halting.

The rifle is brought to the order on halting except in executing: 1. ***In place,*** 2. ***HALT.*** The execution of the order begins when the halt is completed.

In double time, when armed with the rifle, a disengaged hand is held as when without arms.

Rules Governing Carrying of the Automatic Rifle or Machine Rifle.

At the command ***Form Squad,*** machine rifles are slung over the right shoulder, butt down, barrel to the rear, and are so carried for ceremonies and drill. (See Plate 7.)

For marches and field exercises, the machine rifle may be carried slung over either shoulder. Exceptionally, it may be carried at ***Trail Arms,*** which is executed as prescribed for the rifle.

When troops are brought to attention, the machine rifle is slung as prescribed for drills and ceremonies. It is carried slung until the command ***REST*** is given, unless otherwise ordered.

When troops are standing ***at ease,*** the machine rifle is kept slung unless otherwise ordered. Machine riflemen asume the position of ***AT EASE*** or ***Stand at EASE*** as without arms. If the machine rifle is ordered unslung, the position of ***AT EASE*** or ***Stand at EASE*** is taken as prescribed for troops armed with the rifle.

When troops are standing at *rest* the automatic rifle is unslung.

The machine rifleman does not execute the manual except:

a. 1. *Parade*, 2. *REST.* executed as without arms.

b. 1. *Inspection*, 2. *ARMS.* At the preparatory command, sling the machine rifle over the right shoulder unless already in that position. At the command *ARMS* grasp the magazine with the left hand, at the same time pressing the magazine release with the right hand. Withdraw the magazine with the left hand and place in belt. Pull back the operating handle with the left hand.

c. Being in inspection arms: 1. *Order (port, right shoulder)*, 2. *ARMS.* At the command *Order,* pull the trigger, replace the magazine, and resume the position of the soldier, the machine rifle being kept slung.

When arms are stacked the machine rifle is placed on the stack as prescribed for a loose piece.

The machine rifle belt is worn whenever the machine rifle is carried.

The salute. When the machine rifle is unslung the salute is executed as

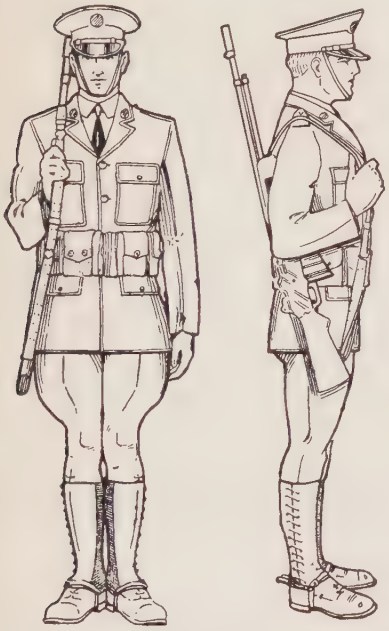


PLATE 7. Position of Automatic Rifle or Machine Rifle Slung Over Right Shoulder.

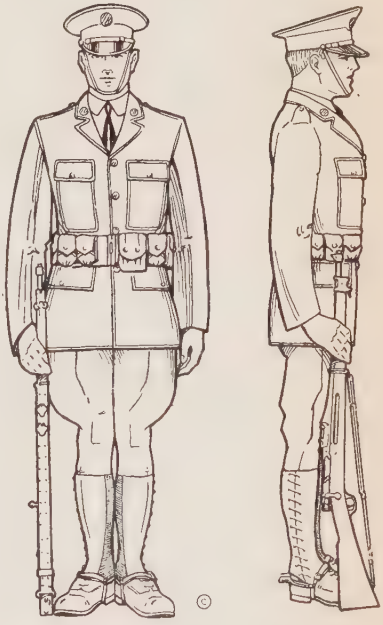


PLATE 8. Position of *Order Arms.*

with the rifle. When the machine rifle is carried slung, the hand salute is executed.

Rules Governing the Conduct of Men Armed with the Pistol.

Officers and enlisted men, armed with the pistol only, remain at the position of the soldier without arms during the execution of the manual, except when their units are brought to the present as a part of a ceremony such as:

The ceremonies.

The presentation of an organization to its commander.

At retreat.

Under the conditions set forth above, officers and enlisted men, armed with the pistol only, execute the first motion of the hand salute at the command *ARMS,* and the second motion of the hand salute at the command of execution of the next command.

When organizations and detachments are not formed as part of a larger unit, and are composed entirely of men armed with the pistol, the commands for rendering the salute prescribed above are: 1. *By the numbers,* 2. *Hand,* 3. *SALUTE,* 4. *TWO.*

Individuals leading or driving saddle or draft animals or standing to horse do not execute the salute.

Rules Governing Execution of the Manual of Arms.

In all positions of the left hand at the balance, the thumb clasps the rifle; the sling is included in the grasp of the hand. In describing the manual of arms, the term *at the balance* in this text refers to the center of the rear-sight leaf of the model 1903 rifle, and to the center of the groove on the hand guard of the model 1917 rifle.

In all positions of the rifle *diagonally across the body,* the position of the rifle, left arm and left hand is the same as in port arms.

In resuming the order from any position in the manual, the motion next to the last concludes with all fingers of the right hand grasping the rifle just above the lower band, the butt of the rifle about 3 inches from the ground, barrel to the rear, the left hand above and near the right, steadying the rifle, thumb and fingers extended and joined, forearm and wrist straight and inclining downward. To complete the order, lower the rifle gently to the ground with the right hand, cut away the left smartly to the side, and take the position of order arms. Allowing the rifle to drop through the right hand to the ground, or similar abuse of the rifle to produce effect in executing the manual, is prohibited.

The cadence of the motions is that of quick time. The recruits are first required to give their whole attention to the details of the motions, the cadence being gradually acquired as they become accustomed to handling their rifles. The instructor may require them to count aloud in cadence with the motions.

The manual may be executed while marching, except ***Present arms, Order arms, Parade rest, Trail arms, Stand at ease, Inspection arms.***

The manual is taught at a halt and the movements are, for the purpose of instruction, divided into motions and executed in detail. In this case, the command of execution determines the prompt execution of the first motion, and the commands ***TWO, THREE, FOUR,*** that of the other motions.

To execute the movement in detail, the instructor first cautions: ***By the numbers.*** All movements divided into motions are then executed as above explained until he cautions: ***Without the numbers,*** or commands movements other than those in the manual of arms.

Whenever circumstances require, the regular positions of the manual of arms and the firings may be ordered without regard to the previous position of the rifle.

Under exceptional conditions of weather or fatigue, the rifle may be carried in any manner directed.

The front-sight cover will be removed only when cleaning the rifle or when engaged in musketry practice.

MANUAL OF ARMS.

Position of Order Arms. The butt rests on the ground, barrel to the rear, toe of the butt on line with the toe of, and touching the right shoe, right hand holding the rifle between the thumb and fingers, left hand as in position of the soldier without arms. (See Plate 8.)

Being at Order Arms. 1. *Trail,* 2. *ARMS.* Raise the rifle and incline the the muzzle forward so that the barrel makes an angle of about 30° with the vertical, the right arm bent slightly. (See Plate 10.)

The position of ***trail arms*** is used principally: When individuals align themselves in dressing; in right and left step; in back step and side step; in taking intervals and assembling; and in extended order formations.

Being at Trail Arms, 1. *Order,* 2. *ARMS.* Lower the rifle with the right hand and resume the order.

Being at Order Arms. 1. *Port,* 2. *ARMS.* With the right hand, raise and throw the rifle diagonally across the body, regrasp it smartly with both hands at the same time; the right, at the small of the stock, palm down; the left, at the balance, palm toward the body, wrist straight; barrel up, sloping to the left and crossing opposite the junction of the neck with the left shoulder; the right forearm horizontal; left forearm resting against the body; the rifle in a vertical plane parallel to the front. (See Plate 11.)

Being at Present or Port Arms. 1. *Order,* 2. *ARMS.* Drop the rifle to the next to last position of order arms, at the same time regrasp it smartly with

PLATE 9.
Next to Last Position of *Order Arms.*

PLATE 10.
Position of *Trail Arms.*

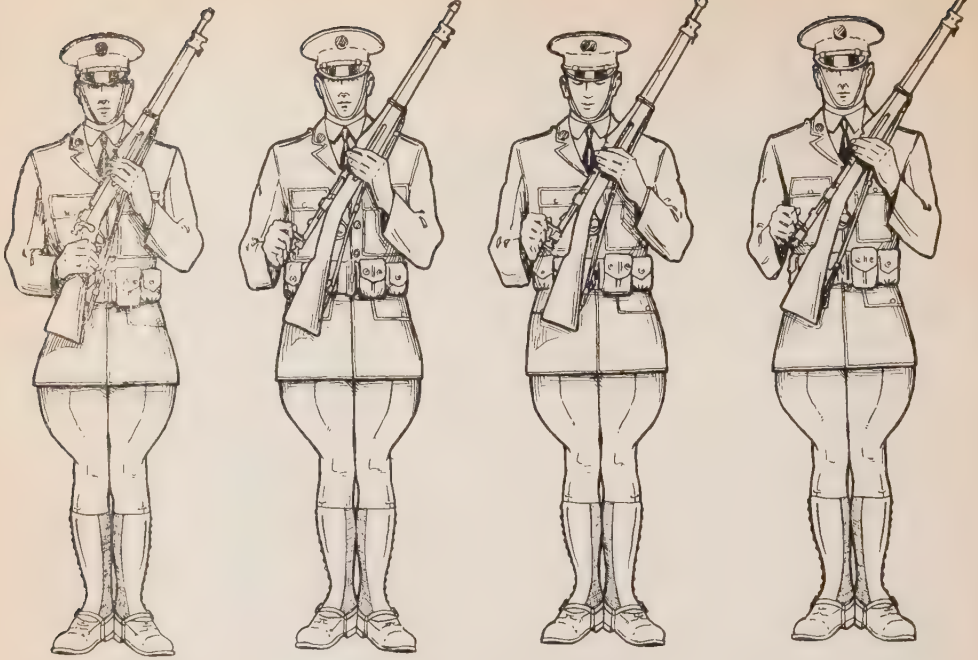
PLATE 11.
Position of *Port Arms.*

the right hand just above the lower band and place the left hand above and near the right. (See Plate 9.) *(TWO)* Complete the order, cutting away the left hand smartly to the side.

Being at Order Arms. 1. *Inspection,* 2. *ARMS.* At the command *ARMS,* take the position of port arms. *(TWO)* Seize the bolt handle with the thumb and forefinger of the right hand, turn the handle up, draw the bolt back, lower the head and eyes sufficiently to glance into the magazine. Having found the magazine empty, or having emptied it, raise the head and eyes to the front. (See Plate 12.)

Being at Inspection Arms. 1. *Order (right shoulder, port),* 2. *ARMS.* At the preparatory command, push the bolt forward, turn the handle down, pull the trigger, and resume the *port arms.* At the command *ARMS,* complete the movement ordered.

Being at Order Arms. 1. *Present,* 2. *ARMS.* With the right hand, carry the rifle in front of the center of the body, barrel to the rear and vertical, grasp



ARMS. *Open bolt.* *Lower head and eyes.* *Raise head and eyes.*

PLATE 12. 1. *Inspection*, 2. *ARMS.*

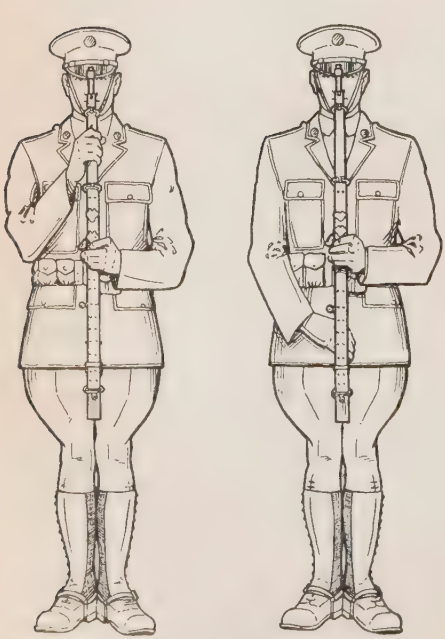


PLATE 13.
1. *Present*, 2. *ARMS.*

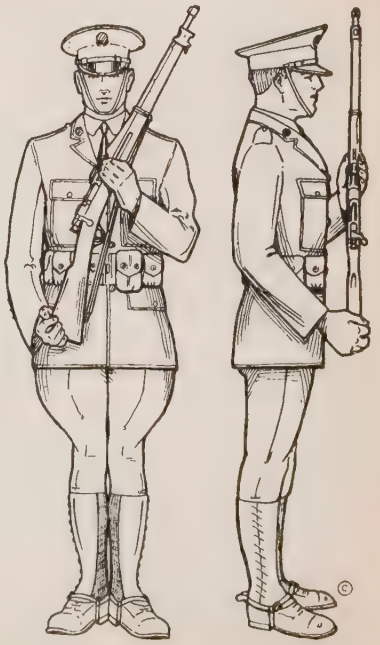


PLATE 14.
Right Shoulder Arms at Count of *ARMS.*

it with the left hand at the balance, forearm horizontal and resting against the body. Include the rear sight leaf in the grasp of the left thumb. (Applicable to troops armed with the U. S. Rifle, Model 1903). *(TWO)* Grasp the small of the stock with the right hand. (See Plate 13.)

Being at Order Arms. 1. *Right shoulder,* 2. *ARMS.* With the right hand, raise and throw the rifle diagonally across the body; grasp it with the right hand at the butt, the heel between the first two fingers, thumb and fingers closed on the stock (See Plate 14). *(TWO)* Without changing the grasp of the right hand, place the rifle on the right shoulder, barrel up and inclined at an angle of about 45° from the horizontal, trigger guard in the hollow of the shoulder, right elbow against the side, forearm horizontal, the rifle in a vertical plane perpendicular to the front; carry the left hand, thumb and fingers extended

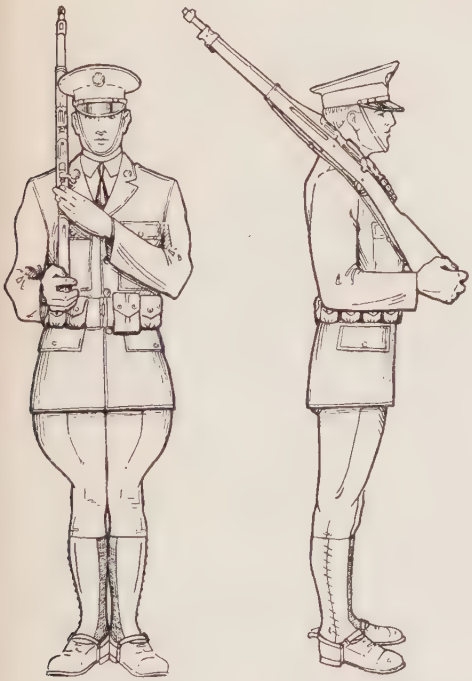


PLATE 15.
Right Shoulder Arms at Count of *TWO.*

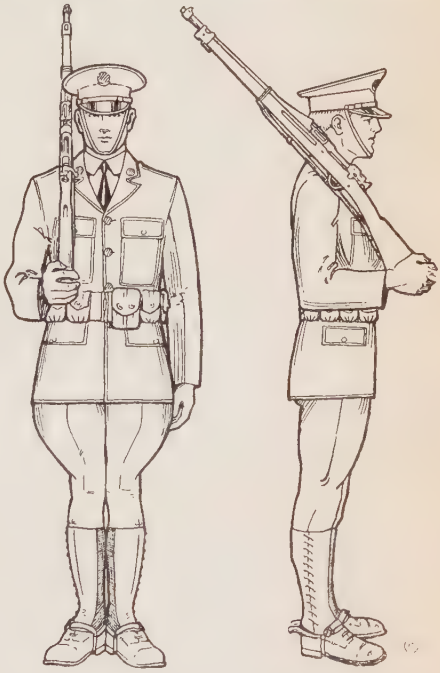


PLATE 16.
Right Shoulder Arms at Count of *THREE.*

and joined, to the small of the stock, first joint of the forefinger touching the cocking piece, wrist straight and elbow down (See Plate 15). *(THREE)* Cut away the left hand smartly to the side. (See Plate 16.)

Being at Right Shoulder Arms. 1. *Order,* 2. *ARMS.* Press down the butt quickly and throw the rifle diagonally across the body, the right hand retaining the grasp of the butt. *(TWO), (THREE)* Execute order arms as prescribed from port arms.

Being at Present Arms. 1. *Port,* 2. *ARMS.* Carry the rifle diagonally across the body and take the position of port arms.

Being at Port Arms. 1. *Present,* 2. *ARMS.* Carry the rifle to a vertical position in front of the center of the body and take the position of present arms.

Being at Right Shoulder Arms. 1. *Port,* 2. *ARMS.* Press the butt down quickly and throw the rifle diagonally across the body, at the same time turning it to the left so as to bring the barrel up, the right hand retaining its grasp of the butt, *(TWO)* Change the right hand to the small of the stock.

Being at Right Shoulder Arms. 1. *Present,* 2. ***ARMS.*** Execute port arms. ***(THREE)*** Execute present arms.

Being at Port Arms. 1. *Right shoulder,* 2. ***ARMS.*** Change the right hand to the butt. ***(TWO), (THREE)*** Execute the last two movements as in right shoulder arms from order arms.

Being at Present Arms. 1. *Right shoulder,* 2. ***ARMS.*** Execute port arms. ***(TWO), (THREE), (FOUR)*** Execute right shoulder arms as from port arms.

Being at Port Arms. 1. *Left shoulder,* 2. ***ARMS.*** Carry the rifle with the right hand and place it on the left shoulder, barrel up, trigger guard in the hollow of the shoulder; at the same time grasp the butt with the left hand, heel between the first two fingers, thumb and fingers closed on the stock; left

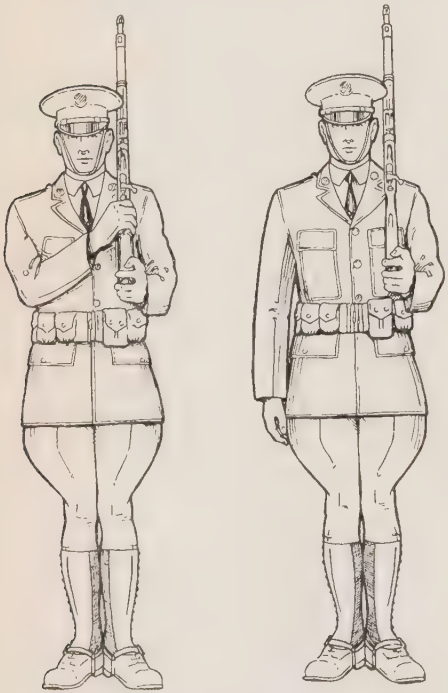


PLATE 17.
1. *Left Shoulder,* 2. ***ARMS.***

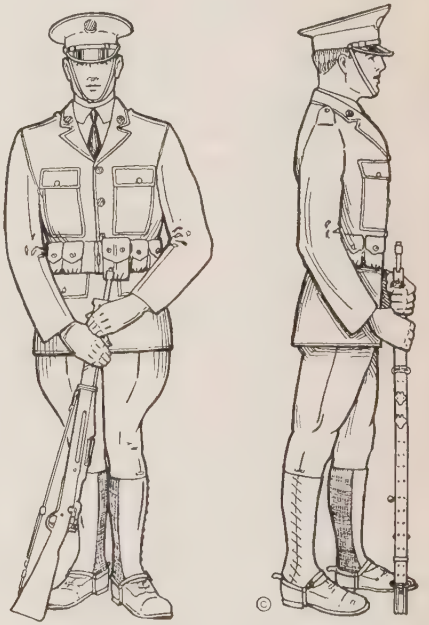


PLATE 18.
Position of *Parade Rest.*

forearm horizontal, left elbow against the side, the rifle in a vertical plane perpendicular to the front. ***(TWO)*** Cut away the right hand smartly to the side. (See Plate 17.)

Being at Left Shoulder Arms. 1. *Port,* 2. ***ARMS.*** Grasp the rifle with the right hand at the small of the stock. ***(TWO)*** Carry the rifle to the right with the right hand, regrasp it with the left, and take the position of port arms.

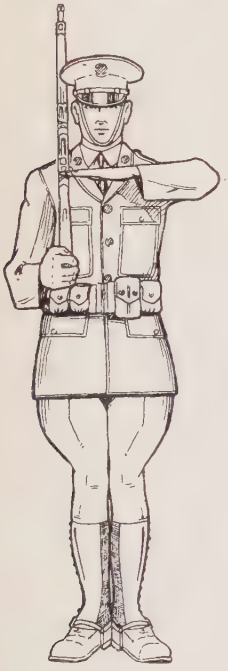
Left shoulder arms may be ordered directly from the order, right shoulder or present, or the reverse. At the command ***ARMS,*** execute port arms and continue in cadence to the position ordered.

Being at Order Arms. 1. *Parade,* 2. ***REST.*** Carry the right foot 6 inches straight to the rear, left knee bent slightly; carry the muzzle in front of the center of the body, barrel to the left, turning the rifle on the heel of the butt, grasp the rifle with the left hand just below the stacking swivel, and with the right hand below and against the left; the weight of the body resting equally on the heels and balls of both feet. (See Plate 18.)

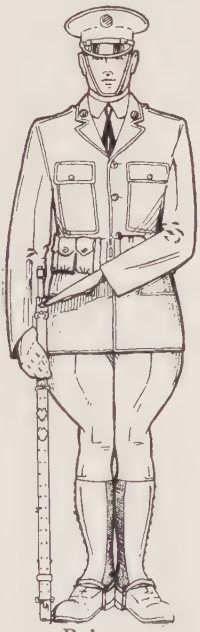
Being at Parade Rest. 1. *Squad,* 2. ***ATTENTION.*** Turn the rifle to the left on the heel of the butt, and bring it to a vertical position, at the same time placing the right foot beside the left. ***(TWO)*** Cut away the left hand smartly to the side and resume the order.

Being at Right Shoulder Arms. 1. *Rifle,* 2. ***SALUTE.*** Carry the left hand smartly to the small of the stock, forearm horizontal, palm of the hand down, thumb and fingers extended and joined, first joint of the forefinger touching end of cocking piece; look toward the person saluted. ***(TWO)*** Cut away the left hand smartly to the side; turn the head and eyes to the front. (See Plate 19.)

Being at Order or Trail Arms. 1. *Rifle,* 2. *Salute.* Carry the left hand smartly to the right side, palm of the hand down, thumb and fingers extended and joined, forearm and wrist straight, first joint of forefinger against the rifle just above the stacking swivel; look toward the person saluted. ***(TWO)***



Being at *Right Shoulder.*



Being at *Order or Trail.*

PLATE 19. Position of *Rifle Salute.*

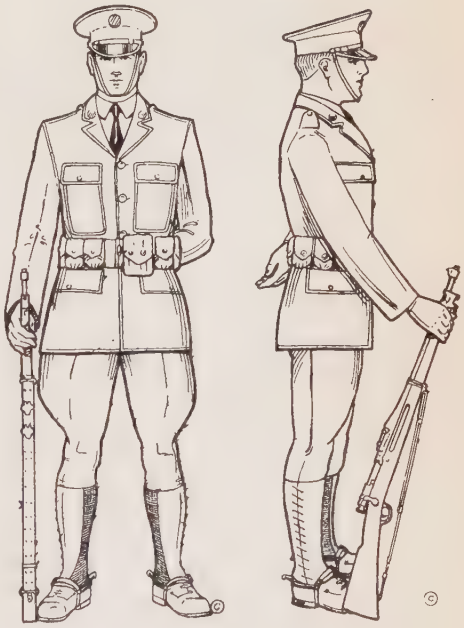


PLATE 20. Position of *Stand at Ease.*

Cut away the left hand smartly to the side; turn the head and eyes to the front. (See Plate 19.)

Being at Order Arms. 1. *Stand at,* 2. ***EASE.*** At the command ***EASE,*** carry the left foot about 12 inches to the left, keeping the legs straight, so that the weight of the body rests equally on both feet. At the same time incline the muzzle of the rifle to the front, the right arm extended, right hand grasping the rifle just below the upper band. Hold the left hand behind the body resting in the small of the back, palm to the rear. (See Plate 20.)

LOADINGS AND FIRINGS.

General Rules. The commands for loading and firing are the same whether standing, kneeling, sitting, or lying down.

When kneeling, sitting, or lying down in double rank, the rear rank does not load, aim, or fire.

The instruction in firing is preceded by a command for loading.

Loadings are executed in line and skirmish line only.

Rifles having been ordered loaded, are kept loaded without command until the command ***UNLOAD*** or ***INSPECTION ARMS,*** fresh clips being inserted when the magazine is exhausted.

To Load. Being in line or skirmish line at a halt: 1. ***With dummy (blank or ball) cartridges,*** 2. ***LOAD.*** At the command ***LOAD*** each front rank rifleman or skirmisher faces half right and carries the right foot about 12 inches to the right to such position as will insure the greatest firmness and steadiness of

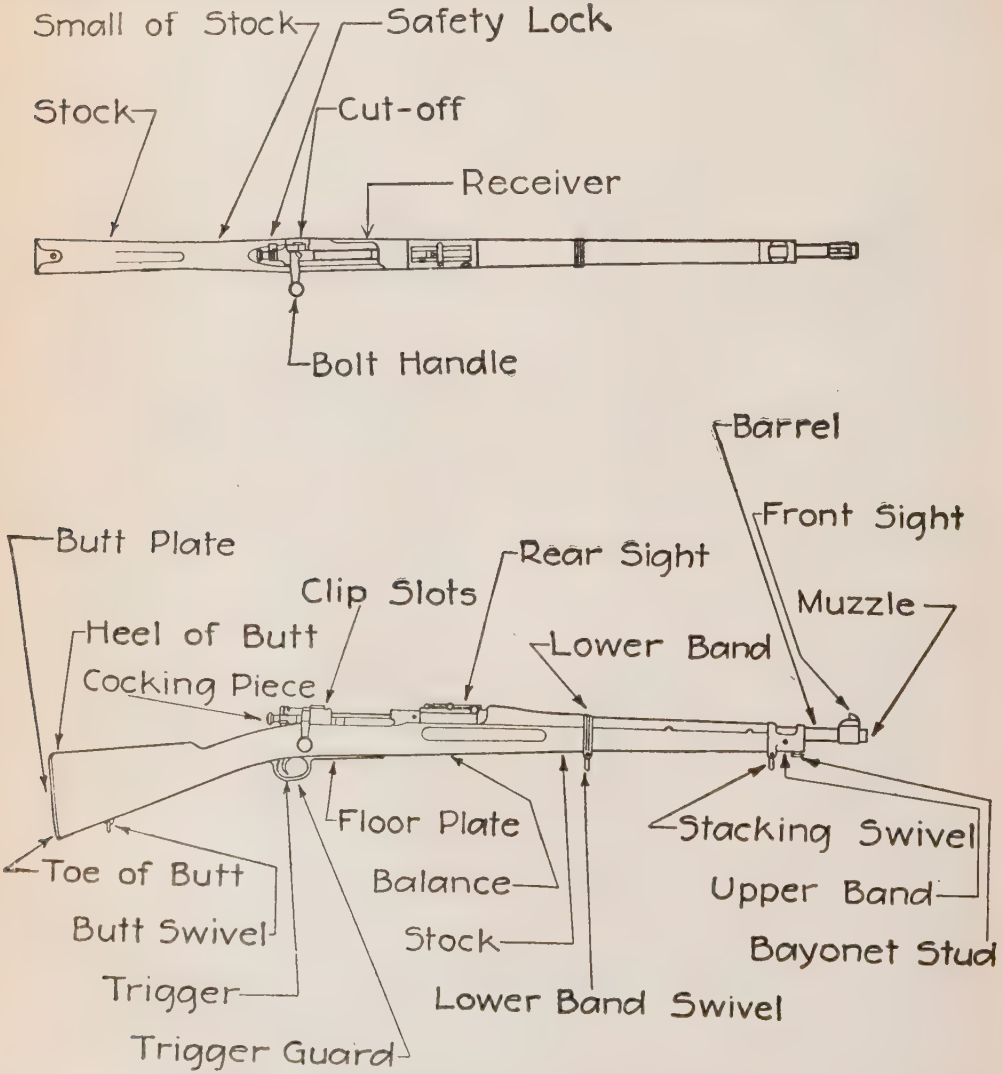


PLATE 21. United States Rifle, Caliber .30, Model 1903.

the body; raises or lowers the rifle and drops it into the left hand at the balance, left thumb extended along the stock, muzzle at the height of the breast, and if armed with the model 1903 rifle, turns the cut-off up. (See Plate 22.) With the right hand he turns up the bolt and draws it back; takes a loaded clip and inserts the end in the clip slots; places his thumb on the powder space of the top cartridge, the fingers extending around the rifle and tips resting on the

magazine floor plate; forces the cartridges into the magazine by pressing down with the thumb; removes the clip; thrusts the bolt home, turning down the handle; turns the safety lock to the *safe* (See Plate 23) and carries the hand to the small of the stock. When in double rank each rear rank rifleman moves to the right front, takes a similar position opposite the interval to the right of his front rank man, muzzle of his rifle extending beyond the front rank, and loads. Automatic riflemen do not execute the loadings or firings in close order.

For instruction in loading: 1. ***Simulate,*** 2. ***LOAD.*** Execute as above described except that the cut-off (model 1903 rifle) remains *off* and the handling of the cartridges is simulated. The recruits are first taught to simulate loading and firing. After a few lessons, dummy cartridges may be used. Later blank cartridges may be used.

The model 1903 rifle may be used as a single loader by turning the magazine *off*. The magazine may be filled in whole or in part while *off* or *on* by pressing

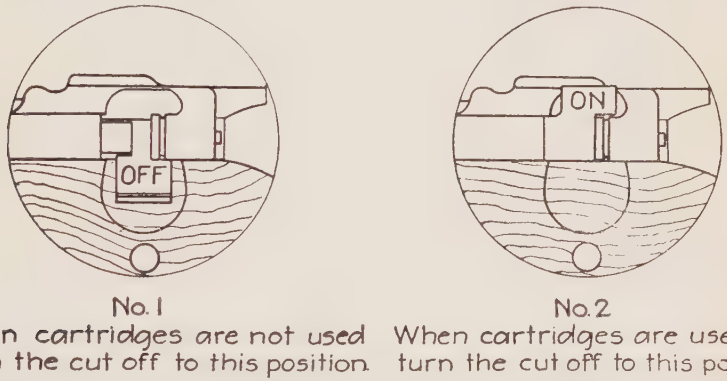

OFF
ON
No. 1
When cartridges are not used turn the cut off to this position
No. 2
When cartridges are used turn the cut off to this position.

PLATE 22. The Two Positions of the Cut-off.

single cartridges down and back until they are in the proper place. The use of the rifle as a single loader is, however, to be regarded as exceptional. The model 1917 rifle cannot be used as a single loader.

To Unload. Being in line or skirmish line: ***UNLOAD.*** Take the position of ***load,*** turn the safety lock (model 1903 rifle) up (if armed with the model 1917 rifle turn the safety lock to the front) and move the bolt alternately backward and forward until all the cartridges are ejected. After the last cartridge is ejected, the chamber is closed by first thrusting the bolt forward slightly to free is from the stud holding it in place when the chamber is opened, pressing the follower down and back to engage it under the bolt, and then thrusting the bolt home. The trigger then is pulled, the cartridges are picked up, cleaned and returned to the belt, and the rifle is brought to the order.

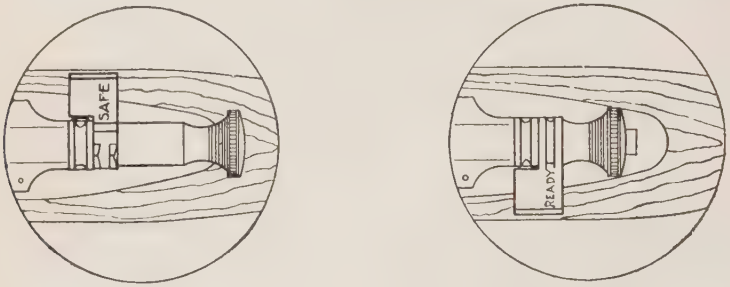
To Fire by Volley. Being in any firing formation and rifles loaded: 1. ***Ready,*** 2. ***AIM,*** 3. ***Squad,*** 4. ***FIRE.*** (For ceremonial purposes.)

At the command ***Ready*** take the position of ***Load*** if not already there and turn the safety lock to the ***Ready.*** At the command ***AIM*** raise the rifle with both hands, butt placed and held firmly against the shoulder, left hand well under the rifle, left hand grasping the rifle at or in front of the balance, rifle resting in the palm of the left hand, right elbow at the height of the shoulder, right cheek held firmly against the stock as far forward as it can be placed without straining. The rifle is held 30° above the horizontal or, if ordered, at the horizontal. The left eye is closed, right eye looking through the notch of the rear sight. At the command ***FIRE*** the trigger is squeezed rapidly; the rifle is then lowered to the position of load and loaded.

When in double rank each rear rank man aims through the interval to the right of his file leader and leans forward slightly to advance the muzzle of his rifle beyond his front rank man.

To continue the firing: 1. ***AIM,*** 2. ***Squad,*** 3. ***FIRE.*** Each command is executed as previously explained. ***LOAD*** (from the magazine) is executed by drawing back and thrusting home the bolt with the right hand, leaving the safety lock turned up to the *ready.*

To Suspend Firing. The instructor blows a long blast of the whistle and repeats it, if necessary, or commands ***SUSPEND FIRING.***



No. 1.
When loaded it is carried in this position

No. 2.
When not loaded it is carried in this position.

PLATE 23. The Two Positions of the Safety Lock.

Firing stops; rifles are held loaded and locked, in a position of readiness for instant resumption of firing, rear sights unchanged. The men continue to observe the target or aiming point, or place at which the target disappeared, or at which it is expected to reappear. Suspend firing is used for short pauses or to steady the men.

This whistle signal may be used as a preliminary to *Cease firing.*

To Cease Firing. ***CEASE FIRING.*** Firing stops; rifles not already there are brought to the position of *load;* those not loaded are then loaded; sights are laid and rifles are locked and brought to the order. Cease firing is used for long pauses, to prepare for changes of position.

Commands for suspending or ceasing fire may be given at any time after the preparatory command for firing whether the firing has actually commenced or not.

CHAPTER III.

MANUAL OF THE RIFLE, MOUNTED.

Introduction. The explanation of positions of the Manual of Arms, Dismounted, has already been given. Movements referred to herein pertaining to Equitation are explained in the course in Equitation.

To Stand to Horse. At ***Stand to horse,*** the rifle is held on the left side of the trooper, in a position corresponding to ***Order arms.***

To Mount. In mounting, the trooper with the rifle at the ***Left trail,*** steps back to a position opposite the girth; and before taking the reins in his right hand, inserts the rifle in the scabbard.

To Dismount. On dismounting, the trooper, after placing the bight of the reins on the horse's neck, and before stepping forward to take the position of stand to horse, takes the rifle from the scabbard, assumes the ***Left trail,*** and then completes the movement. The rifle is never carried on the saddle when the trooper is dismounted, unless specially ordered.

To Fight on Foot or Form on Foot. In executing ***Fight on foot*** or ***Form on foot,*** the trooper first secures his horse, and then takes the rifle from the scabbard.

To Lead Out. When the trooper is leading his horse for short distances, the rifle is carried at the ***Left trail,*** unless otherwise prescribed.

To Advance Rifle. (The trooper being mounted). The command is: 1. ***Advance,*** 2. ***RIFLE.*** At the command ***RIFLE,*** grasp the piece at the small of the stock with the right hand, raise it, and place the butt upon the right thigh, barrel to the right, the piece inclined to the front at an angle of about 30 degrees. (See Plate 24.)

To Return Rifle. (The trooper being mounted). The command is: 1. ***Return,*** 2. ***RIFLE.*** Lower the muzzle, insert the rifle in the scabbard, and drop the right hand to the side. The piece, when loaded is always locked before executing ***Return rifle.***

To Load. Being at ***Advance rifle,*** at the command ***LOAD,*** drop the piece into the left hand, resting the toe of the butt against the right thigh, and incline the barrel to the left and upward at an angle of about 30 degrees. Support the rifle at the balance by the thumb and forefinger of the left hand, the other fingers closed on the reins; then, taking care not to change the "feel" of the reins, load the piece, and resume the position of ***Advance rifle.*** (See Plate 25.)

To Unload. Being at ***Advance rifle,*** at the command ***UNLOAD,*** the piece is held as in loading except that the left hand grasps the piece so that the forefinger is placed over the chamber to prevent cartridges from being ejected when the bolt is drawn back. Cartridges are removed from the chamber and replaced in the belt with the right hand. After the piece is unloaded, the position of ***Advance rifle*** is resumed.

To Aim. In aiming, first turn the horse so that the target is to the left, drop the rifle into the left hand at the balance, raise it with both hands, and take aim. Care should be taken not to disturb the horse by a change in the "feel" of the reins. (See Plate 26.)

To Fire. The only classes of fire which it is practicable to employ mounted with the rifle are ***Fire at Will*** and ***Clip Fire;*** and even these are ordinarily applicable only to small groups of foragers, patrols, or individual scouts

PLATE 24. Position of *Advance Rifle.*

PLATE 25. To Load.

To Suspend Firing. The signal or command ***SUSPEND FIRING*** is repeated as necessary. Firing stops, pieces are held loaded and locked in the position of ***Advance rifle,*** sights unchanged, ready for instant resumption of firing.

PLATE 26. To Aim.

To Cease Firing. The signal or command ***CEASE FIRING*** is repeated as necessary. Firing stops, pieces not loaded are loaded, sights are laid, and all pieces are locked and brought to the position of ***Advance rifle.***

CHAPTER IV.

MANUAL OF THE PISTOL.

General. The movements hereinafter described differ in purpose from the manual of arms for the rifle in that they are not designed to be executed in exact unison. Furthermore, with only a few exceptions, there is no real necessity for their simultaneous execution. They are not therefore planned as a disciplinary drill to be executed in cadence with snap and precision, but merely as simple, quick, and safe methods of handling the pistol. Commands are prescribed for only such movements as may be occasionally executed simultaneously by the squad or larger unit.

In general, movements begin and end at the position of ***Raise pistol.***

Commands for firing, when required, are limited to ***COMMENCE FIRING*** and ***CEASE FIRING.***

Whenever the pistol is carried mounted the lanyard will be used. It is snapped to the butt of the pistol, and is worn with the loop over the left shoulder and under the right arm. The lanyard should be of such length that the arm may be fully extended without constraint.

DISMOUNTED.

To Raise the Pistol. The command is: 1. ***Raise,*** 2. ***PISTOL.*** At the first command, unbutton the flap of the holster with the right hand and grasp the stock, back of the hand outward. At the second command, draw the pistol from the holster; reverse it, muzzle up, the thumb and last three fingers holding the stock, the forefinger extended outside the trigger guard, the barrel of the pistol to the rear and inclined to the front at an angle of 30°, the hand as high as, and 6 inches in front of, the point of the right shoulder. This is the position of ***Raise pistol.*** (See Plate 27.)

To Withdraw the Magazine. Without lowering the right hand, turn the barrel slightly to the right; press the magazine catch with the right thumb and with the left hand remove the magazine. Place it in the belt or otherwise dispose of it; in no case throw it away. (See Plate 28.)

To Open the Chamber. Withdraw the magazine and resume the position of of raise pistol. Without lowering the right hand, grasp the slide with the thumb and the first two fingers of the left hand (thumb on left side of slide and pointing downward); keeping the muzzle elevated, shift the grip of the right hand so that the right thumb engages with the slide stop. Push the slide downward to its full extent, and force the slide stop into its notch with the right thumb, without lowering the muzzle of the pistol. (See Plate 29.)

To Close the Chamber. With the right thumb press down the slide stop and let the slide go forward. Squeeze the trigger. (See Plate 30.)

To Insert a Magazine. Without lowering the right hand, turn the barrel to the right. Grasp a magazine with the first two fingers and thumb of the left hand; withdraw it from the belt and insert it in the pistol. Press it fully home.

To Load the Pistol. The command is: 1. ***Load,*** 2. ***PISTOL.*** If a loaded magazine is not already in the pistol, insert one. Without lowering the right hand, turn the barrel slightly to the left. Grasp the slide with the thumb and fingers of the left hand (thumb on *right* side of slide and pointing *upward*). Pull the slide downward to its full extent. Release the slide and engage the safety lock. (See Plate 31.)

PLATE 27.
1. *Raise,* 2. *PISTOL.*

PLATE 28.
To Withdraw the Magazine.

PLATE 29.
To Open the Chamber.

PLATE 30.
To Close the Chamber.

PLATE 31.
To Load the Pistol.

PLATE 32.
1. *Inspection,*
2. *PISTOL.*

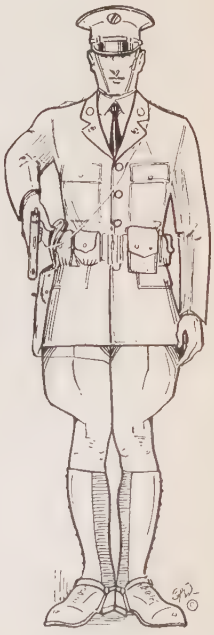


PLATE 33.
1. *Return,*
2. *PISTOL.*

To Unload the Pistol. The command is: 1. *Unload,* 2. *PISTOL.* Withdraw the magazine. Open the chamber. Glance at the chamber to verify that it is empty. Close the chamber. Take position of *Raise pistol* and squeeze the trigger. Then insert an empty magazine.

To Inspect the Pistol. The command is: 1. *Inspection,* 2. *PISTOL.* Withdraw the magazine. Open the chamber. Take the position of *Raise pistol.* The withdrawn magazine is held in the open left hand at the height of the belt. After the pistol has been inspected, or at the command 1. *Return,* 2. *PISTOL,* close the chamber, take the position of *Raise pistol,* and squeeze the trigger. Insert an empty magazine, and execute *Return pistol.* (See Plate 32.)

To Return Pistol. The command is: 1. *Return,* 2. *PISTOL,* Lower the pistol to the holster, reversing it, muzzle down, back of the hand to the right; raise

PLATE 34. 1. *Raise,* 2. *PISTOL* (Mounted).

the flap of the holster with the right thumb; insert the pistol in the holster and thrust it home; button the flap of the holster with the right hand. (See Plate 33.)

MOUNTED.

The following movements are executed mounted as prescribed in the Manual of the Pistol, Dismounted.

Raise pistol, (see Plate 34), *Return pistol, Close chamber.*

The mounted movements may be practiced when dismounted by first cautioning, *mounted position.* The right foot is then carried about 20 inches to the right, and left hand to the position of the bridle hand.

Whenever the pistol is lowered into the bridle hand, the movement is executed by rotating the barrel to the *right.* Grasp the slide in the full grip of the

left hand, thumb extending along the slide, back of the hand down, barrel down and pointing upward and to the left front.

To Withdraw the Magazine. Lower the pistol into the bridle hand. Press the magazine catch with the forefinger of the right hand, palm of the hand over the base of the magazine to prevent it from springing out; withdraw the magazine and place it in the belt, or otherwise dispose of it. (See Plate 35.)

To Open the Chamber. Withdraw the magazine. Grasp the stock with the right hand, back of the hand down, thrust forward and upward with the right hand, and engage the slide stop by pressure of the right thumb. (See Plate 36.)

To Insert a Magazine. Lower the pistol into the bridle hand. Extra magazines should be carried in the belt with the projection on the base pointing to

PLATE 35. To Withdraw the Magazine (Mounted).

the left. Grasp the magazine with the tip of the right forefinger on the projection, withdraw it from the belt, and insert it in the pistol. Press it fully home.

To Load the Pistol. The command is: 1. *Load,* 2. *PISTOL.* Lower the pistol into the bridle hand. If a loaded magazine is not already in the pistol, insert one. Grasp the stock with the right hand, back of the hand down, and thrust upward and to the left front; release the slide and engage the safety lock.

To Unload the Pistol. The command is: 1. *Unload,* 2. *PISTOL.* Withdraw the magazine. Open the chamber. Glance at the chamber to verify that it is empty. Close the chamber. Take the position of *Raise pistol* and squeeze the trigger. Then insert an empty magazine.

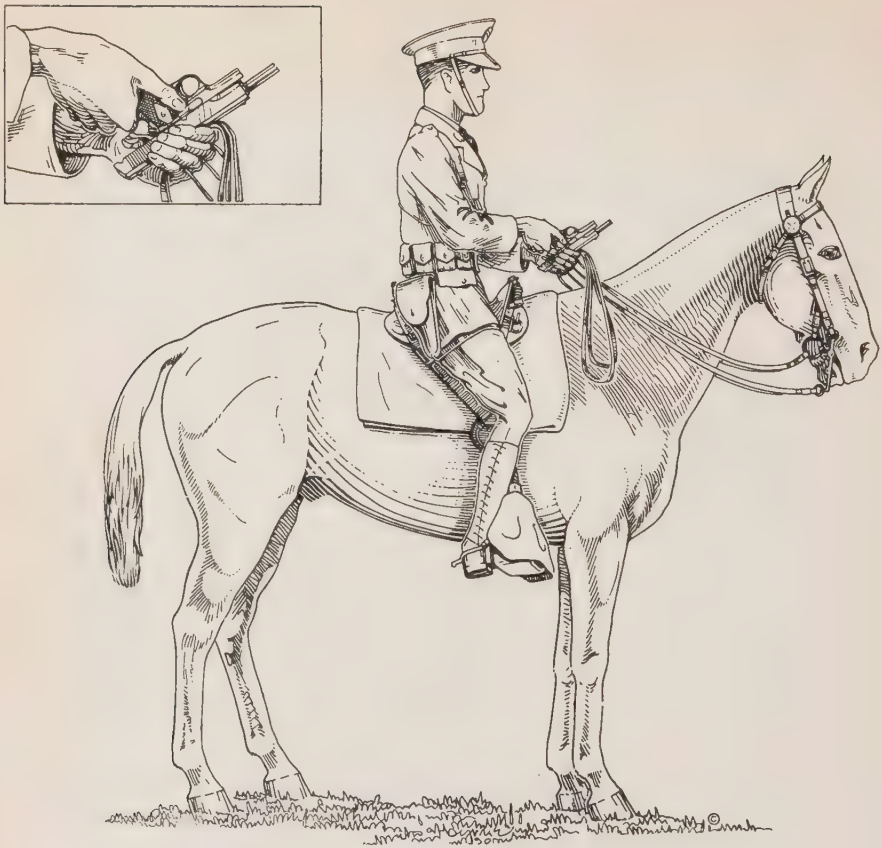


PLATE 36. To Open the Chamber (Mounted).

To Inspect Pistol. The command is: 1. *Inspection,* 2. *PISTOL.* (The pistol is inspected mounted only at Mounted Guard Mounting. The magazine is not withdrawn.) Take the position of *Raise pistol.* After the pistol has been inspected, or at the command, pistols are returned.

CHAPTER V.

MANUAL OF THE SABER.

MANUAL OF THE SABER, TROOPERS.

To Draw Saber. The command is: 1. *Draw,* 2. *SABER.* At the command *Draw,* turn the head and glance toward the saber hilt; engage the right wrist in the saber knot, and give it two turns inward to secure it; grasp the hilt, and draw the saber about six inches from the scabbard; turn the head and eyes to the front. At the command *SABER,* draw the saber quickly, raising the arm upward and to the right front to its full length, saber in prolongation of the arm; with the saber in this position, make a short pause, then bring it down with the blade against the point of the shoulder, edge to the front, the grip clasped easily between the first and second fingers, and the thumb, the right hand resting on the thigh, the elbow back. This is the position of *carry saber,* mounted. (See Plate 37.) When mounted with saber drawn, the position of *Carry saber* is assumed at the command *ATTENTION.*

A noncommissioned officer commanding a unit armed with the saber habitually draws saber before causing his command to draw saber, and habitually returns saber after having caused his command to return saber. All other noncommissioned officers execute *Draw Saber* and *Return saber* with the men in ranks.

To Return Saber. When practicable, troops are halted before returning sabers. The movement may, however, be executed either at a halt or while moving. The command is: 1. *Return,* 2. *SABER.*

The scabbard being attached to the pommel (off side). At the command *Return,* extend the arm upward and to the front, the saber in prolongation of the arm, edge down. At the command *SABER,* rotate the arm to the left at the shoulder until the edge of the blade is up, lower the point of the blade by bending the arm at the elbow and wrist, turn the head and eyes toward the scabbard, insert the blade, and drive it home; disengage the wrist from the saber knot, and resume the position of attention.

The scabbard being attached to the cantle (off side). At the command *Return,* carry the hand to a position the height of, and 6 inches in front of, the right shoulder, blade vertical, edge to the front, the grip grasped so that the pommel rests in the hollow of the hand. At the command *SABER,* turn the head and eyes toward the scabbard, raise the saber vertically to the full extent of the arm, lower the blade (forward), insert the point in the scabbard, and drive it home; disengage the wrist from the saber knot, and assume the position of attention.

To Present Saber. The movement is executed only from the *Carry saber.* The command is: 1. *Present,* 2. *SABER.*

At the command *SABER,* carry the saber upward and to the front until the thumb is 6 inches in front of the chin, blade vertical, edge to the left. The grip is held in what is termed the "full grasp" of the hand, viz., all four fingers grasping the grip, pressing the back of the grip against the heel of the hand, the thumb extended along the groove in the back of the grip.

To resume the position of *Carry saber,* the command is: 1. *Carry,* 2. *SABER.*

To Salute With the Saber. To salute with the saber, execute *Present saber* when six yards from the person saluted, or at the nearest point of approach if more than six yards away. The position of *Present saber* is held until the person saluted has passed, or has returned the salute; the saber is then returned to the *Carry.* At the instant of assuming the position of *Present saber,* the

head and eyes are turned smartly toward the person saluted; upon returning to the *Carry,* the head and eyes are turned smartly to the front. (See Plate 38.)

To Execute Inspection Saber. The movement is executed only from the *Carry.* The command is: 1. *Inspection,* 2. *SABER.* At the command *SABER* execute *Present saber,* and make a slight pause; then, without changing the grasp, turn the saber until the edge is to the right and the hand is in front of the right shoulder, and again make a slight pause (see Plate 39); then resume the position of *Carry saber.*

To Execute Port Saber. The movement is executed only from the position of *Carry saber.* In all close-order formations except column of troopers, the movement is executed only when at a halt. When in extended order formation,

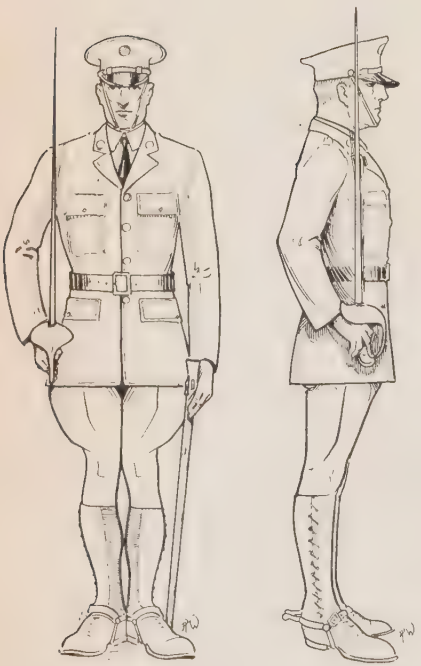


PLATE 37.
Position of *Carry Saber.*

PLATE 38.
Position of *Present Saber.*

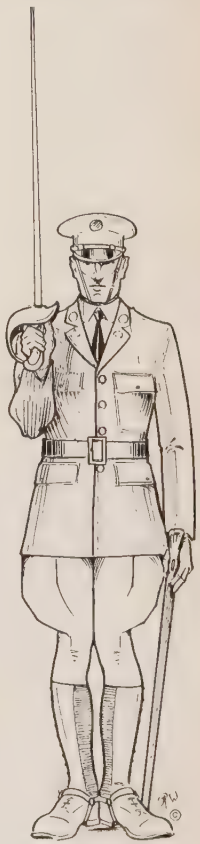


PLATE 39.
1. *Inspection,* 2. *SABER.*

the movement may be executed either at a halt or when moving. It may be executed in all mounted exercises in which the trooper acts as an individual, as, for example, during Saber Exercises, or when jumping obstacles.

The movement provides a comfortable position in which to hold the saber, and may be taken to relieve troopers from the fatigue and constraint of holding the saber at the *Carry* for a prolonged period.

The command is: 1. *Port,* 2. *SABER.* At the command *SABER,* lower the blade to the left front until its flat side, edge to the front, rests on the middle of the left forearm. The hilt is clasped easily in the "full grasp" of the right hand, the right hand resting on the right thigh, the saber extended to the left front, point about 6 inches higher than hilt. (See Plate 40.)

MANUAL OF THE SABER, OFFICERS.

The manual of the cavalry saber for officers is the same as that prescribed for the trooper, except as noted below.

To Present Saber. At the command *Present,* carry the saber upward and to the front until the thumb is about 6 inches in front of the chin, the blade vertical, edge to the left, the grip held in the "full grasp"—viz., to the position of ***Present saber*** as prescribed for the trooper. At the command ***SABER,*** lower the saber until the blade is opposite and near the right toe, edge of the blade to the left, right arm straight, hand near the thigh.

To Salute With the Saber. To salute with the saber, execute ***Present saber***

PLATE 40.
Position of *Port Saber.*

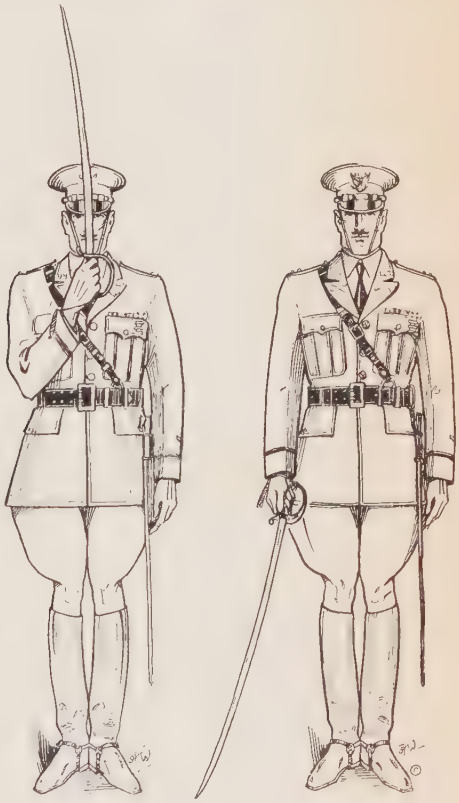


PLATE 41.
The Officer's Salute with the Saber.

when six yards from the person saluted, or at the nearest point of approach if more than six yards away. The *second* position is held until the person saluted has passed, or has returned the salute (see Plate 41); the saber is then returned to the ***Carry.*** At the instant of changing from the first position of ***Present saber*** to the second position, the head and eyes are turned smartly toward the person saluted; upon returning to the ***Carry,*** the head and eyes are turned smartly to the front.

Inspection Saber. This movement is not executed by officers.

General Rules for Officers. An officer commanding a unit armed with the saber habitually ***Draws saber*** before causing his command to ***Draw saber,*** and habitually ***Returns saber*** after having caused his command to ***Return saber.*** Officers of a commander's staff draw and return saber with him.

An officer with saber drawn habitually assumes the position of ***Carry saber*** under the following conditions:

When officially addressing or being officially addressed by an officer senior to himself.

When in ranks, on the approach of an inspector.

When in formation, while giving commands to his unit.

Preparatory to returning saber.

At the command ***Attention.***

CHAPTER VI.

DRILL. DEFINITIONS. GENERAL PRINCIPLES.

DEFINITIONS OF TERMS USED IN CAVALRY DRILL AND TRAINING.

Accompanying weapons. Weapons other than cavalry weapons, such as light mortars, tanks, and artillery pieces, which may be attached to cavalry.

Air scout. A soldier detailed for the purpose of furnishing a command warning of the approach of hostile aircraft.

Alignment. A straight line upon which several elements are formed, or are to be formed; or the dressing of several elements upon a straight line.

Approach. The conduct of a command toward the enemy, through the zone in which losses may be anticipated from the enemy's artillery or other distant fire, with a view to the subsequent deployment of the command for combat.

Assault. The final rush to, and close combat with, the enemy; to determine the issue by hand to hand encounter. The assault when delivered by mounted troops is also termed the charge.

Assembly. The regular grouping, in close order, of the elements of a command.

Attack. An offensive action of any kind after contact has been established with the enemy.

Base. The element on which a formation or movement is regulated. The base may be a trooper, a set of twos, a set of fours, a squad, a platoon, or a larger unit. When the base is a single trooper in ranks, he may also be termed the guide.

Center. The middle point or element of a command. If the number of elements considered be even, the right center element is considered the center element.

Close order. Close order formations are those for which intervals and distances for the various units are prescribed in regulations.

Column. A formation in which the elements of a command are placed one behind another with prescribed or designated distances. The elements here referred to may be troopers, twos, fours, squads, platoons, or larger units. In column of twos or fours, the troopers of each two or four are in *Line.*

Containing action (or holding attack). An attack designed to hold the enemy to his position, and prevent him from withdrawing portions of his force and employing them elsewhere.

Demonstration. An attack delivered on a front where a decision is not sought, and made with the object of deceiving the enemy. Also, a specially arranged exercise illustrating the tactical employment of troops, or the use of certain weapons or equipment.

Deployment. An evolution in which the command is extended in frontage or in depth, or both, as in forming line from column or in passing from close order to extended order.

Depth. The space from front to rear of any formation, including the front and rear elements.

Development. The break-up of a command into fractional columns and marching them on designated terrain objectives to facilitate the approach and development.

Directing leader. A subordinate who temporarily conducts the march when the commander is not leading in person. A trooper in the ranks of a platoon or smaller unit who similarly conducts the march is termed a *directing guide.*

Direction of march. The direction in which the base of the command in question, whether actually in march or halted, is facing at the instant considered.

Disposition. The distribution of the elements of a command, and the formations and duties assigned to each for the accomplishment of a common purpose.

Distance. The space between men or bodies of troops measured in the direction of depth. Distance is measured, mounted, from the croup of the horse in front to the head of the horse in rear; dismounted, from the back of the trooper in front to the breast of the trooper in rear. Within a command, distance between elements (or subdivisions) is measured between ranks. Leaders, noncommissioned officers, and troopers out of ranks are not considered in the measurement of distance, except in column of fours, twos, or troopers where distance is measurer between the rearmost individual (or individuals) of the leading element and the foremost individual (or individuals) of the rear element.

Dress. The act of taking a correct alignment.

Drill. The exercise and evolutions taught on the drill ground and practiced for the purpose of instilling discipline, control, and flexibility.

Echelon. a. A step-like formation in which the elements are arranged so that each succeeding element is less advanced than the preceding one and is unmasked by it, either wholly or in part; intervals and distances as designated.

b. Half echelon is an echelon formation where each succeeding element is half unmasked by the preceding element and at any distance that may be designated.

c. In battle formation, the term echelon is also employed to designate the different fractions of a command in the direction of depth, to each of which a principal combat mission has been assigned; for example, the *assault echelon,* the *support echelon,* the *reserve echelon.*

d. Echelon is a term also employed to designate the various subdivisions of a headquarters; as forward echelon, rear echelon.

Element. One of the component subdivisions of a command; such as a trooper, file, squad, section, platoon, etc.

Evolution. A movement by which a command changes its position or passes from one formation to another.

Extended order. Extended order formations are those in which the individuals or units are separated by intervals or distances, or both, greater than in close order.

File closer. An officer or noncommissioned officer placed in rear of ranks, whose duty it is to supervise the men in ranks and see that the orders of the commander are carried out. For convenience, this term is applied to any man posted in the line of file closers.

Flank. The right or left of a command, in line or column. In speaking of the enemy, the term right flank or left flank is used to designate the flank that would be so designated by him.

Flock. An irregular fan shaped formation of the squad, in which individual troopers are dispersed in rear of the leader, but separated from him and from each other by distances and intervals varying between ten and twenty yards.

Formation. Arrangement of the elements of a command so that all fractions are placed in their order in line, in column, or in echelon.

Front. Denotes the direction of the enemy, or the portion of our own troops in contact with the enemy.

Frontage. The space, in width, occupied by a command, either in line or in column.

Gait. Manner of going (as regards mechanical foot movement) of the horse in forward motion—viz., the walk, the trot, or the gallop, as distinguished from pace or rate of speed.

Gait of march. The gait at which the base of a mounted command is moving at the instant considered.

Guide. An officer, noncommissioned officer, or private, in ranks, upon whom the command, or element thereof, regulates its march.

Horse length. A term of measurement. For convenience in estimating space, a horse length is considered as 3 yards; actually, it is about 8 feet.

Interval. The lateral space between the elements or fractions of a command. Between mounted troopers, it is measured from knee to knee; between dismounted troopers, from elbow to elbow.

Leading. When the commander of a unit or element is in front of his unit or element and controlling its movements, he is said to be leading it.

Line formation. A formation in which the different elements are abreast of each other with prescribed or designated intervals. When the elements are in column, the formation is called line of columns.

Line of departure. A line designated for the start of an attack, making possible the coordination of all elements in the attack.

Maneuver. Movement of troops, especially a movement based on tactical conditions, and executed according to the nature of the ground, the position and movements of the enemy, and similar factors. Also, a tactical exercise, laid on the ground, or on a map, in simulation of war, and involving, usually, two opposing sides, though one side may be outlined, represented, or imaginary; the term in this sense is used in the plural, and especially applies to the two-sided type involving the exercises of large bodies of troops in the field, in simulation of war.

Mass. A formation in which the close order intervals and distances are less than normal. This formation is particularly suited for use in ceremonies and large commands, and is especially applicable to the squadron. A suitable mass formation of the squadron is ***Line of Troops,*** in column of platoons in ***Line,*** with 10 yards interval between troops and 15 yards distance between platoons.

Objective. A hostile position or force which a command has been ordered to reach or overcome.

Pace. Rate of movement dismounted; as quick time, double time. Used in reference to gait, pace signifies the rate of speed of the gait. Used as a unit of measure, pace signifies a step of 30 inches.

Patrol. A group of troopers detached from a command and operating under control of a leader with a specific mission, usually related to security or information. The term is ordinarily applied to groups varying in size from two men to a platoon.

Rank. A row or line of men arranged side by side in close order, either mounted or dismounted. Also, grade or relative precedence in the military service, by virtue of a commission, warrant, or the like.

Sector. The area within which the combat functions or responsibilities of a command are exercised, when acting *defensively.* Its lateral boundaries are usually prescribed, and extend from the rearmost element of the command, toward the front, to a distance at least equal to the maximum range of the weapons of the unit.

Scout. A soldier sent out to reconnoiter.

Successive formation. A movement in which the different elements arrive in their proper places in the formation successively.

Wave. One of a series of lines of troopers or small columns into which an attack unit is deployed.

Zone of Action. The area within which the combat functions or responsibilities of a command are exercised when acting *offensively.* Its lateral boundaries are usually prescribed, and extend from the rearmost element of the command, toward the front, to the limit of contemplated advance.

GENERAL PRINCIPLES.

Elasticity. The system of cavalry drill provides a highly elastic drill, offering a wide variety of formations, and is based on three types of formation; *Line, column,* and *echelon,* applicable to cavalry units of any size, or to subdivisions of units. Changes from one formation to another are made by the simplest and most direct methods. Only those formations which are useful and necessary are employed. The objective of the drill is the quiet, rapid and effective functioning of each unit with the minimum of commands and signals.

Formations.

Formations of cavalry units are in single rank only.

Types of Formations. *Line, column* and *echelon* are the three types of formations employed in the drill of all cavalry units and subdivisions of units, whether in close or extended order.

The principles for assuming the three types of formations are the same for all units except the squad. The squad assumes line and column formations in accordance with principles applicable to the squad only.

The squad is the only unit provided with a formation designed primarily for its protection; the *Flock.* The wide variety of formations provided in the drill of larger units, provides equal protection for these units when suitable formations are properly employed. In such formations the platoon is the unit of dispersion; and platoon leaders (under actual or assumed combat situations) will be permitted wide latitude in employing such formations as they may elect for the protection of their units.

Extended-order formations differ from close-order formations only in that intervals and distances, or both, are increased and are specified in the command. Hence normal intervals and distances for extended-order formations are not specified in regulations. Troopers, deployed in extended-order formations, are *At ease.*

In assuming any close-order formation, the prescribed intervals or distances, or both, may be decreased when practicable and desirable by specifying in the command the desired intervals or distances.

Leaders. The commander of each unit is its leader. He marches in the direction and at the pace or gait desired, followed by the base element. He may leave the guidance of the base to a subordinate (who is called the direction leader) in order to permit the leader to go where needed for purposes of instruction or control. Control is exercised by commands, signals and example.

Base Element. For purposes of drill, the elements (or subdivisions) of units of all sizes are numbered from right to left in line and from front to rear in column.

In line formations the base element is normally the center or right center element; however, any element may be designated as the base. In column and echelon formations the base is the leading element.

In all formations, units other than the base conform to the formation of the base, unless otherwise directed.

In any change of formation the base element retains its original formation, unless a change for the base element be indicated in the command.

Movements.

Changes in formation are accomplished by the simplest and most direct methods. In executing changes in formation, units of all sizes should habitually be maneuvered in column of fours or line of column formations in preference to *Line.*

Units of all sizes execute such movements of smaller units as are obviously applicable, by the same commands and signals.

Movements into Line. Line formations (except in the squad) are habitually gained from any column formation by a fan shaped deployment. The second element or subdivision in column moves up on the left of the leading element or subdivision, the third element in column moves up on the right of the leading element or subdivision, and so on. Thus the line is formed by the successive arrival of elements or subdivisions abreast of the base. When line is to be formed facing in any direction other than the direction of march, the head of the column is turned in the new direction before the deployment is ordered.

When the command ***Line*** is given without specifying the formation for the elements (or subdivisions of elements) it is to be understood that all elements and their subdivisions will deploy into line (i.e., all troopers in ranks are abreast with normal intervals). This formation is employed by machine-rifle and machine-gun units at the halt and walk only.

Note: In this text when a unit is thus completely deployed into line, its formation is referred to as ***Line.***

Movements into Column. Column formations (except in the squad) are habitually gained from any line formation by a successive movement of the elements or subdivisions, the base element or subdivision moving in the indicated direction, followed alternately by the elements or subdivisions on its left and right.

Exceptional Methods of Assuming Line or Column Formation. Line formations from any column formation, and column formations from any line formation, may be gained to a flank by wheeling the elements (or subdivisions) to the right or left. This method of forming line or column is exceptional and is used only in an emergency. When this method is employed and the unit is to be moved some distance in the new formation, the leader commands ***POSTS,*** whereupon leaders, file closers, etc., assume their proper posts; and normal intervals and distances are secured gradually. When the unit is to be moved but a short distance to the flank, the posts of leaders, file closers, etc., do not change, and normal intervals and distances are not maintained.

Movements into Echelon. Echelon formations may be gained from any line formation on any designated element as the base. The base moves in the designated direction, and elements on the right of the base are conducted by their leaders to their proper positions to the ***right*** rear of the base. In a similar manner, elements on the left of the base are led to their proper positions to the ***left*** rear of the base.

Echelon formations may be gained from any column formation, on any element as base.

In assuming echelon formations when intervals and distances are not designated in the command, each succeeding element is so arranged that it is completely unmasked without interval by the preceding one, and at a distance from the preceding element equal to the width of its front in the formation; when greater intervals and distances are desired, they must be specified in the command.

Half echelon formations are assumed in the same manner as echelon formations, excepting that in all cases, the distance must be specified in the command. (See definition of half echelon).

Special Movements. *The Assembly.* A unit is assembled when its elements are united in any authorized close-order formation. The leader commands or signals: 1. ***Assemble, 2. MARCH,*** indicates the base, and prescribes the formation and the formation of the other elements with respect to the base, i.e., whether in line, column, or echelon. If the leader does not indicate the formation of the elements with respect to each other, they assemble in close-order column,

each element in the same formation as the base. The assembly is executed successively by subordinate units, i.e., in the troop—the squads assemble, platoons assemble by squads, and the troop assembles by platoons.

The assembly is executed promptly. To reach their positions, elements other than the base increase their gait one degree, unless otherwise ordered, over that of the base.

Other special movements are explained in the drill of the squad or other unit.

Gaits.

The gaits are the walk, the trot, and the gallop, at the speed of 4, 8, and 12 miles per hour respectively. These gaits will be rigidly adhered to at all times, unless the text specifically provides otherwise. Changes from one gait to another should be accomplished smoothly and gradually. Unit commanders are directly charged with the responsibility of requiring their subordinate leaders to be mounted on properly gaited horses.

In movements from the halt, or when marching at the walk, if the gait be not specified in the command, the base element (or subdivision) takes or maintains the walk.

Line formations are gained from column formations by the head of the column preserving the gait of march, and the rear elements or subdivisions increasing the gait of march one degree without command; or by indicating in the command an increase of gait of more than one degree for the rear elements or subdivisions. When the formation must be hastened or executed in a restricted space, the leader may diminish the gait of the leading element or subdivision, or halt it. When an increased gait is indicated during the execution of the movement, it applies only to those elements or subdivisions which have not completed the movement. If a decrease in gait is ordered during the execution of the movement, it applies to the base and to those elements or subdivisions which have completed the movement.

Column formations are gained from line formations on the base element or subdivision which moves at the gait of march, or at the gait ordered. The other elements or subdivisions take or maintain the next slower gait, or halt, until they can take their place in column.

Echelon formations are gained by the base preserving the gait of march, and the other elements, or subdivisions, either increasing or decreasing their gaits one degree as required (or as ordered), in order to gain their respective positions in the formation.

Commands.

Commands may be transmitted by any of the following methods:

Signals; The example of the leader; Voice; Whistle; Trumpet calls; Messengers; Combinations of any of these methods.

Whatever means is used will be considered the equivalent of an oral command. The base unit, by the example of its march, formation, and gait or pace, indicates the will of the leader.

There are two kinds of commands: preparatory commands, such as *Forward,* which indicate the movement that is desired; and commands of execution, such as *MARCH, HALT,* or *Arms,* which cause the movement to be executed. At times a single command is used which both indicates the movement and causes its execution, such as *RALLY* or *FOLLOW ME.* In this text, commands of execution are written in capital letters, to distinguish them from preparatory commands which are not so written.

A preparatory command should be given at such an interval of time before the command of execution as to admit of its being properly understood; the command of execution is given at the instant the movement is to commence.

Preparatory commands may be revoked by commanding *AS YOU WERE.*

The leader by means of commands, announces the formation or movement

desired, leaving to the subordinate leaders the adoption of the proper means to obtain the result.

A single command is employed when it indicates clearly the desired formation; for example, if a platoon is in column of fours and it is desired to deploy the platoon in a single line, with five yards interval between troopers, the commands are: 1. *Line of troopers at 5 yards,* 2. *MARCH.*

Two commands may be combined into one provided the desired formation be clearly indicated thereby. Thus, if a squadron is in column of fours and it is desired to deploy the squadron in a line of squads at 50 yards interval, each squad in column of troopers, the commands are: 1. *Line of squads at 50 yards, in column of troopers,* 2. *MARCH.*

A series of separate commands is often advisable when the desired formation requires the assumption of different types of formations for the elements or subdivisions of the various units of the command, as in the following examples: If, with a troop in column of fours, a formation is desired in which the platoons are abreast, each platoon in column of squads, and each squad in *Line,* the commands are: 1. *Line of platoons,* 2. *MARCH;* and 1. *Squads, Line,* 2. *MARCH.*

If, with a troop in *Line,* a formation is desired where the troop is in echelon on its left platoon, each platoon in line of squads at 20 yards interval, and each squad in column of troopers, the commands are: 1. *Squads, column of troopers,* 2. *MARCH;* 1. *Line of squads at 20 yards,* 2. *MARCH;* and 1. *On left platoon, echelon,* 2. *MARCH.* (In this instance, the first two commands could be combined into the one command, i. e., 1. *Line of squads at 20 yards, in column of troopers.* 2. *MARCH,* followed by 1. *On left platoon echelon,* 2. *MARCH.*

Special Rules.

The troop is the largest unit which executes the manual of arms, steps and facings, etc., in unison at the command of the leader.

In turning about, unless otherwise indicated, officers and men whether mounted or dismounted, turn to the right about.

Officers and noncommissioned officers acting as platoon or troop commanders, draw and return saber at the command of their immediate superior.

In all dismounted formations and movements, unless otherwise specified, a noncommissioned officer commanding a platoon carries his rifle in the same manner as the men in ranks.

Dismounted Formations and Movements.

The principles governing dismounted formations and movements are the same as prescribed for mounted formations and movements, except as to pace as noted below.

In movements from the halt, or when marching in quick time, if the *pace* be not specified in the command, the base element (or subdivision) takes or maintains quick time.

In line formations to the front. Line formations to the front are gained from column without increasing the pace of any elements (or subdivisions), unless a new pace be ordered. The leading element or subdivision, continues until halted. The other elements or subdivisions march toward their proper places until they arrive on line, when they halt abreast of the base. This rule also applies in assuming a column formation of greater front; i.e., in forming column of fours from column of troopers, or column of platoons in *Line* from column of fours.

If marching in quick time, or if at a halt, and double time be indicated during the execution of the movement, the leading element or subdivision takes up, or continues to move, in quick time, and other elements move in double time until abreast of the base when they take quick time.

If marching at double time and no pace is indicated in the command, the leading element, or subdivision continues in the double time until quick time or halt is ordered. The other elements continue in double time until they have completed the movement.

In column formations to the front. Column formations to the front, dismounted, are gained in the same manner as prescribed for mounted movements, except that in movements initiated from quick time, the elements (or subdivisions) of *squads and platoons* which must decrease their pace temporarily prior to assuming their new positions in the formation, ***mark time*** instead of halting; or if halted, ***mark time*** at the command of execution, and continue to do so until such time as movement is required to assume their new positions in the formation. This rule does not apply to elements larger than the platoon.

In echelon formations. Echelon formations partake of the characteristics of both column and line formations, and rules of paces prescribed above for dismounted column and line formations apply in assuming echelon formations dismounted, and the reverse.

CHAPTER VII.

DRILL AND COMBAT SIGNALS.

General Provisions. Drill and combat signals are for the purpose of transmitting commands and information. They are employed when oral commands are not desirable, or are impracticable.

Signals may be given by whistle, or by arm-and-hand. To render any arm-and-hand signals more visible, the saber or headdress may be carried in the hand during the execution of the signal.

Whistle signals will be made with the whistle prescribed for the leader or commander concerned.

In the list of arm-and-hand signals, signals are prescribed for the right arm and hand, unless specifically stated otherwise; however, any signal may be executed, when necessary, with left arm and hand.

Signals must be plainly visible to those concerned in their execution. They should be made with precision, every position taken by the arm and hand during the signal being distinct and clear.

Arm-and-hand signals include both preparatory signals and signals of execution. Whenever the command for any movement includes both a preparatory command and a command of execution, both a preparatory signal and a signal of execution must be used.

Preparatory arm-and-hand signals are made from the position of the hand at the side, and the signal of execution by the return of the hand to the side. Preparatory signals with the saber are made from the position of carry saber, and the signal of execution by the return to the carry saber.

Combination arm-and-hand signals (those made-up of two or more elements) should be avoided, unless the component parts are easily recognized; and they should never be used when a single signal will serve the purpose. When used, they should always be made-up in the same sequence as an oral command would be worded; for example, the proper sequence of signals for ***Line of troops in column of fours*** would be: ***Line,*** followed by ***troops,*** followed by ***Column of fours.***

On the firing line, or in drills simulating firing line conditions, leaders "repeat back" at once each signal received.

Whistle Signals.

Whistle signals other than the two given below are prohibited.

Attention to orders. A short blast of the whistle. This signal is used to fix the attention of the troops, or of their commanders and leaders, preparatory to giving commands, orders, or signals.

Suspend firing. A long blast of the whistle. This signal should be verified at once by an arm-and-hand signal, or by other means.

Arm-and-Hand Signals.

The following general arm-and-hand signals, when appropriate, are applicable to all cavalry units:

Are you ready? or *I am ready* (execution). Extend the arm toward the leader for whom the signal is intended, hand raised, fingers extended and joined, palm toward the lader.

Assemble (preparatory). Raise the hand vertically to the full extent of the arm, palm to the front, fingers extended and joined, then describe slowly with the arm small horizontal circles about the head.

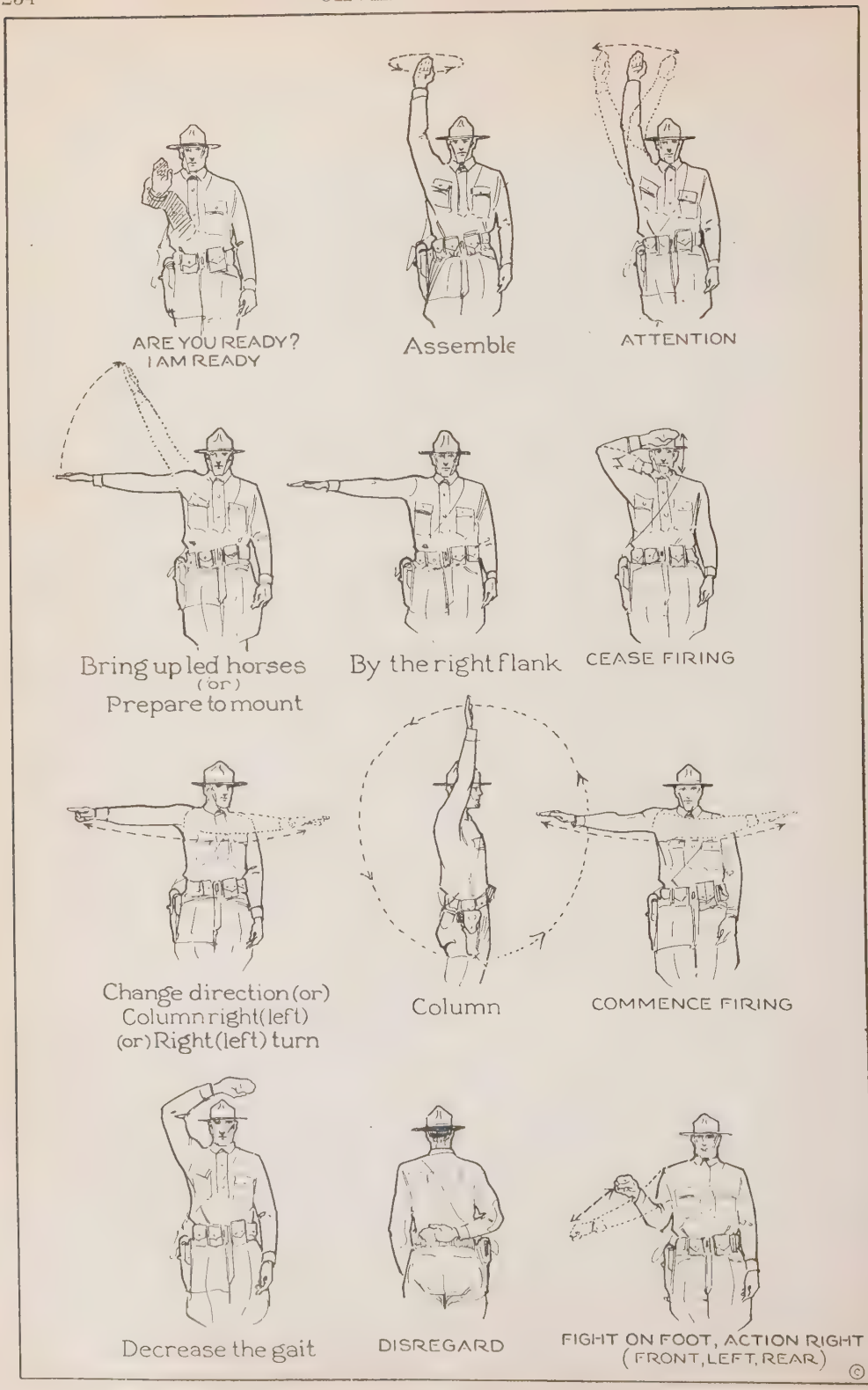


PLATE 42. Arm-and-Hand Signals for Drill and Combat (1).

Attention (execution). Raise the arm vertically to its full extent, palm to the front, and move the arm and hand slowly back and forth several times from the right to left and from the left to right, in a vertical plane.

Bring up led horses. Same as prepare to mount.

By the right (left) flank (preparatory). Extend the hand horizontally, to the full extent of the arm, directly to the right (left).

Cease firing (execution). Raise the forearm as prescribed for suspend firing, and swing it up and down in front of the face.

Change direction (preparatory). Extend the arm horizontally, palm down, in the direction of the marching flank; and then make a wide sweeping movement (with the arm in a horizontal plane) toward the new direction, and point in that direction.

Column (preparatory). Raise the arm vertically to its full extent; then drop the arm to the rear, and describe circles (in a vertical plane on the right) with the arm fully extended.

Column right (left) Column half right (half left) (preparatory). Same as prescribed for change direction.

Commence firing (execution). Extend the hand horizontally in front of the body to the full extent of the arm, palm down; then move the arm several times through a wide horizontal arc.

Decrease the gait (preparatory). Raise the right elbow to a position above and to the right of the right shoulder, the forearm extending upward and to the left, right hand above the head, palm to the front. Except when the leader's example indicates otherwise, a decrease of gait of one degree is understood.

Disregard (execution). Place the hand against the back at the height of the waist, back of the hand toward the body.

Double time (preparatory). Same as increase the gait.

Fight on foot, action right (left, front or rear) (execution). Strike straight from the shoulder, with the closed fist, several blows in the direction in which the action is desired.

Fire faster (execution). Execute rapidly the signal commence firing.

Fire slower (execution). Execute slowly the signal commence firing.

Flock (preparatory). Extend the arm to the side horizontally, fingers extended and joined, and describe small vertical circles with hand and arm.

Follow me (execution). Same as forward.

Forward (preparatory). Raise the hand vertically to the full extent of the arm, palm to the front; then lower the hand and arm in the direction of movement (until horizontal).

Fours (preparatory). Raise the hand vertically to the full extent of the arm, all fingers extended and separated, thumb closed in the palm of the hand.

Fours left about (preparatory). Same as fours, followed by to the rear. Fours right about is not executed by signal.

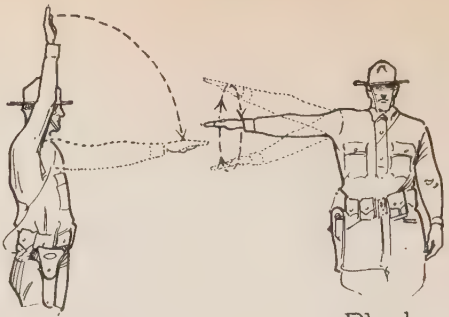
Fours right (left) (preparatory). From the vertical position of the preparatory signal *Fours,* the hand and arm are carried smartly to the right (or left) until horizontal, fingers remaining extended and separated in a vertical plane.

Halt (preparatory). Raise the hand vertically to the full extent of the arm, palm to the left, fingers extended and joined (execution drop the arm smartly to the side.

Increase the gait (preparatory). Carry the hand to the shoulder, fist closed; then, rapidly, thrust upward vertically to the full extent of the arm and back to the shoulder several times. Except when the leader's example indicates otherwise, an increase in gait of one degree is understood.

Lie down (execution). Turn toward the unit and raise the hand, palm down, in front of the elbow, forearm horizontal; then thrust the hand downward and back to this position several times, holding the wrist rigid.

FIRE FASTER (OR) SLOWER



Forward; FOLLOW ME

Flock

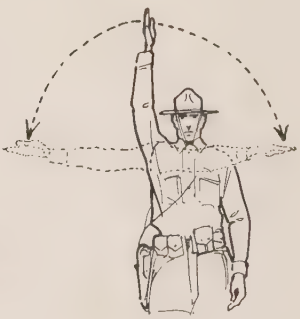
Fours

Fours right

Halt

Increase the gait(or) Double time(or)prepare to rush

LIE DOWN; TAKE COVER



Line

Line of troopers Mounted

Line of troopers Dismounted

MARCH

©

PLATE 43. Arm-and-Hand Signals for Drill and Combat (2).

Line (preparatory). Raise the hand vertically to the full extent of the arm, fingers extended and joined, and wave well down alternately to the right and left several times.

Line of troopers, mounted (preparatory). Extend the arm horizontally to the front, palm down, and move it rapidly from left to right and from right to left in a horizontal plane. When this signal is used, an interval of 5 yards between troopers is to be taken, unless otherwise directed by the leader.

Line of troopers, dismounted (preparatory). Raise both arms laterally until horizontal, arms and hands extended, palms down. When this signal is used, an interval of 5 yards is to be taken between troopers, unless otherwise directed by the leader.

March (execution). Raise the hand vertically to the full extent of the arm, palm to the left, fingers extended and joined; after a very brief pause in this position, drop the arm smartly to the side.

New target (execution). Extend the arm and hand to the front, palm to the right (left). Swing the arm to the right (left) and point in the direction of the new target.

Platoons (preparatory). Raise the right elbow to the height of the shoulder, fist closed, forearm vertical.

Prepare to dismount (preparatory). Extend the arm diagonally upward to the right, palm downward, fingers extended and joined, and wave the arm downward, to a horizontal position, several times. The signal for the execution of the movement is the same as the preparatory signal, except that the arm is carried through the horizontal to the side.

Prepare to mount (preparatory). Extend the hand horizontally to the right, palm up, fingers extended and joined; and wave the arm upward several times. The signal for the execution is the same as the signal March.

Prepare to rush (preparatory). Same as increase the gait.

Quick time (preparatory). Same as increase the gait.

Rally (execution). Raise the hand vertically to the full extent of the arm, palm down, fingers extended and joined; then describe rapidly with the arm large horizontal circles about the head.

Range (execution). Announce the range by extending the arm to its full extent, with fist closed, toward the leader or men for whom the signal is intended; then open the fist, exposing the palm and fingers to the leader or men, once for 500 yards, twice for 1,000 yards and so on. Move the fist upward, wrist rigid, and back to the range-announcing position once for each 100 yards up to 500 and for each additional 100 yards above 500 (or multiple of 500). To add 50 yards, describe a short horizontal line with the arm, fist closed. A change of elevation is accomplished by signalling (completely) the new range.

Right (left) turn: right (left) half turn (preparatory). Same as Change direction.

Squads (preparatory). Raise the hand vertically to the full extent of the arm, palm to the left, fingers extended and joined; then, holding the arm steady, distinctly move the hand (from the wrist) to the right and left several times.

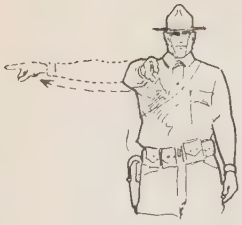
Suspend firing (execution). Raise the forearm to a horizontal position in front of the forehead, palm to the front, fingers extended and joined. Hold the forearm steady until the signal is understood.

Take cover (execution). Same as lie down.

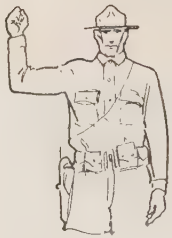
To the rear (preparatory). Turn and point to the rear, arm horizontal.

Troopers (preparatory). Raise the hand vertically to the full extent of the arm, first finger extended, other fingers closed in the palm of the hand.

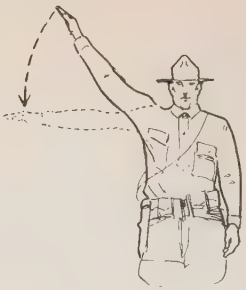
Troops (preparatory). Place the palm of the hand against the back of the neck.



NEW TARGET

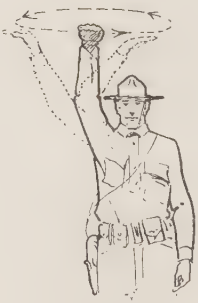


Platoons



Prepare to dismount

Prepare to mount
(or) Bring up horses

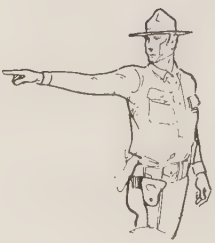


RALLY

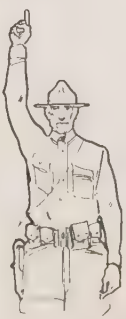
RANGE

Squads

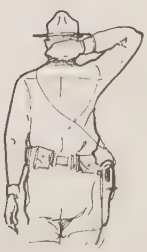
SUSPEND FIRING



To the rear



Troopers



Troops

Twos

©

PLATE 44. Arm-and-Hand Signals for Drill and Combat (3).

Twos (preparatory). Raise the hand vertically to the full extent of the arm, first two fingers extended and separated, other fingers closed in the palm of the hand.

Additional Signals for Various Units.

For Rifle Units. In addition to the general arm-and-hand signals, the following arm-and-hand signal is prescribed for rifle units only.

Marching fire (execution). Strike straight from the shoulder, with the closed fist, several blows in the direction of the enemy. Then signal forward.

For Machine Gun Units. In addition to the appropriate general arm-and-hand signals, the following arm-and-hand signals are prescribed for machine gun units only:

Action front (right, left or *rear)* (execution). Same as prescribed for ***Fight on foot.***

Down (so many) mils (execution). Extend the arm fully—slightly above the horizontal, palm down, fingers extended and joined—toward the gun or guns for which the signal is intended; and wave downward with a full swing of the arm. Indicate the number of mils by flexing the elbow and thrusting the closed fist to the front once for each 5 mils, and downward once for each single mil. Thus for 4 mils, thrust downward 4 times; for 6 mils, thrust to the front once and downward once.

Out of action (execution). Strike the closed fist of the right hand rapidly against the open palm of the left hand several times.

To the right (left) (so many) mils (execution). Extend the arm to the front with the palm to the right (left), fingers extended and joined; and wave to the right (left). Indicate the number of mils by flexing the elbow and thrusting the closed fist to the front once for each 5 mils, and to the right (left) once for each single mil. The change is measured on the windage scale.

Traversing fire (execution). Extend the arm to the front, palm to the left (right), fingers extended and joined; and wave the hand up and down with a chopping motion, at the same time moving the arm and hand right to left (left to right) as it is desired that the fire be distributed.

Up (so many) mils (execution). Extend the arm to the front and downward palm up, fingers extended and joined; and wave upward with a full swing of the arm. Indicate the number of mils by flexing the elbow and thrusting the closed fist to the front once for each 5 mils, and upward for each single mil. The change is measured on the elevating mechanism.

For Transportation Elements. In addition to the appropriate general arm-and-hand signals, the following arm-and-hand signals are prescribed for transportation elements:

Right (left) by section (preparatory). Point to the right (left) section, with the arm fully extended, palm down; then signal *Forward.*

Right (left) front into line (preparatory). Signal *Line,* then *Right (left) oblique.*

Right (left) into line (preparatory). Point to the right (left); then signal *Line.*

Sections (preparatory). Raise the hand vertically to the full extent of the arm, fist closed.

Sections column right (left) (preparatory). Signal *Sections;* then *Column right (left).*

Special Signals for Scouts and Patrols. In addition to the appropriate general arm-and-hand signals, the following signals are prescribed for scouts and patrols only.

Enemy in sight in small numbers. Hold the weapon horizontally above the head, with arms extended as if guarding the head.

Enemy in sight in large numbers. Hold the weapon as prescribed for *Enemy in sight in small numbers;* and lower and raise it several times by flexing the arms at the elbows.

CHAPTER VIII.

THE RIFLE SQUAD.

Organization. A rifle squad normally consists of seven privates and a corporal (the squad leader), who are organized into fours.

Should there be less than 8 men in the squad, files of the four other than the corporal's are left blank in the order: 4, 3, 2, and 1.

Should there be more than 8 men in the squad, those in excess of 8 are assigned to a third four in the order: 1, 2, 3, and 4.

In *Line,* the corporal is habitually in the center of his squad, as No. 1 of the left four.

In *Column,* the corporal is habitually the right trooper of the leading four or two, or the leading trooper in *Columns of troopers.*

Upon the organization of the squad, the corporal designates a substitute squad leader, who will be No. 1 of the right four in line (or the second four in column). Nos. 2 and 3 of the corporal's four are designated as ground scout and alternate ground scout respectively. Nos. 2 and 3 of the other four are designated as air scout and alternate air scout respectively.

With recruits, squad drill should commence almost simultaneously with individual instruction. Thus they learn from the start to regard the squad as their organization, and the corporal as their leader.

Principles Controlling the Evolutions of the Squad.

The principles of evolution within the squad differ from those prescribed for larger units, except as to pace and gait.

Intervals. In any close-order line formation, the interval between troopers or sub-divisions of the squad (fours or twos) is such that if *Line* be formed, an interval will remain between troopers of the squad as follows: 6 inches (from knee to knee) when mounted; 18 inches between horses when dismounted with horses; and 4 inches when dismounted without horses.

Distances. In any close-order column formation, mounted, or dismounted with horses, the distance between four, twos, or troopers is 4 feet; dismounted without horses, the distances are respectively, 92 inches, 40 inches, and 14 inches.

The squad leader is habitually in ranks, and is the guide of the squad. However, when the squad is acting alone, the corporal may, for purposes of instruction or control, take any other desirable position. In such case, he designates a trooper to take his place in ranks. Thus, the leader may place himself 3 yards in front of the guide, and by the command *FOLLOW ME,* move in any direction at any pace or gait desired. The squad conforms to the movements of the leader.

In *column of fours* or *twos,* the guide of each four or two is always on the right.

When *line* is formed to a flank from *column of fours* by a wheeling of fours, or when *column of fours* is formed to a flank from *Line* by the same means, the corporal may be thrown out of his habitual position in the squad, in which event, he takes advantage of the next change of formation to regain his habitual position.

To Form the Squad. The squad is habitually formed in *Line.* The corporal stations himself where he desires the center of his squad to rest, and commands: *FORM SQUAD.* The troopers arrange themselves, at attention, on the right and left of the corporal, as directed by him, with the prescribed intervals. The corporal verifies his squad, and commands: *COUNT FOURS.* Starting on

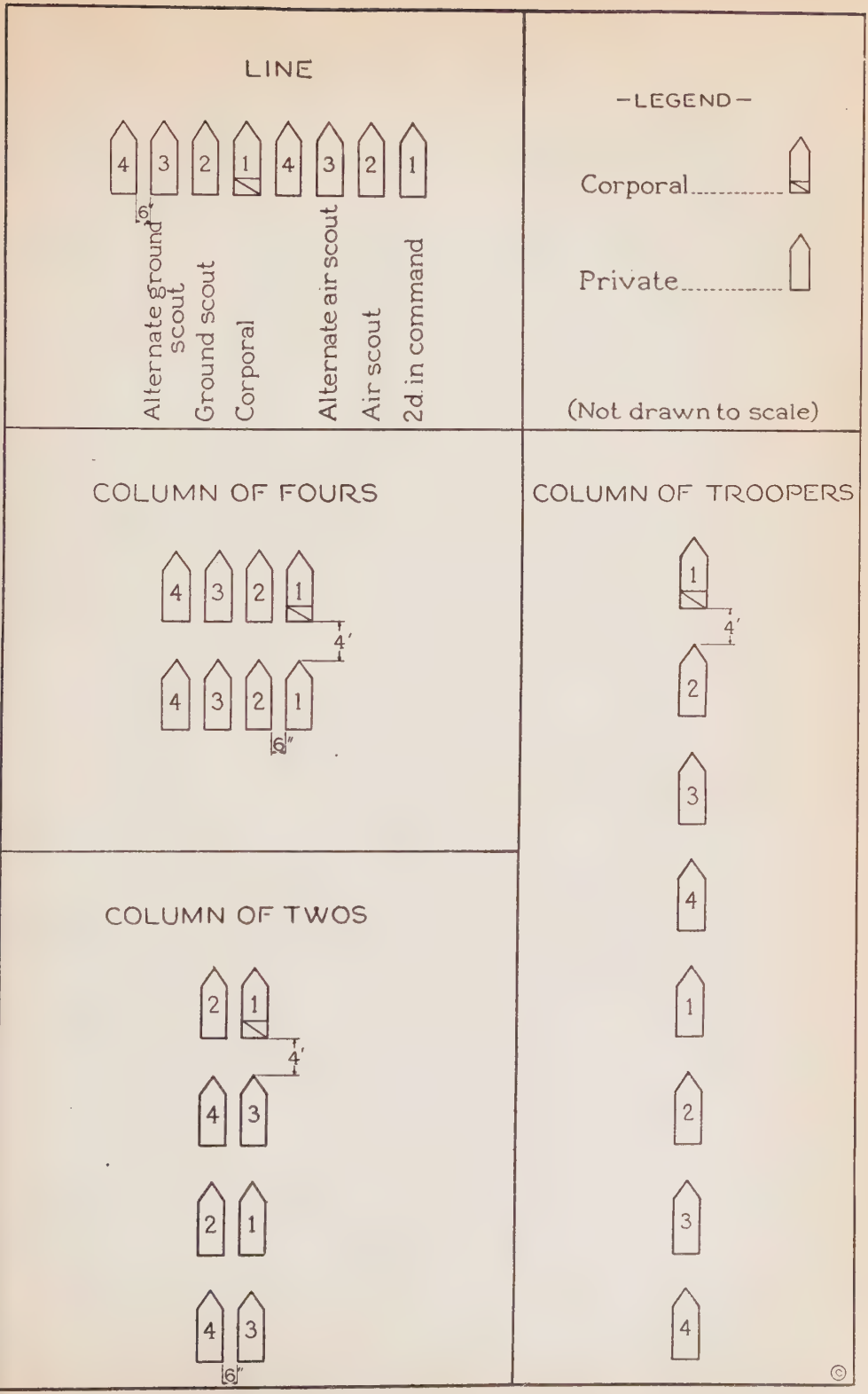


PLATE 45. Close-Order Formations of the Rifle Squad, Mounted.

the right, the troopers call out in succession, "One," "Two," etc., except that the corporal always calls out "One" regardless of whether the four on his right is complete.

The squad may be formed in column of fours, twos or troopers. To do so, the corporal, after commanding, ***FORM SQUAD,*** cautions the formation he desires taken. After having verified his squad, the corporal cautions, ***NOTE YOUR NUMBERS.***

Whenever the squad is formed dismounted, with or without horses, and armed with the rifle, the corporal, after verifying his squad, commands: *1. Inspection,* 2. ***ARMS;*** followed by: 1. ***Order,*** 2. ***ARMS.***

To Mount. The squad being in ***Line,*** at ***Stand to horse,*** the commands for mounting are: 1. ***Prepare to mount,*** 2. ***MOUNT;*** 3. ***FORM RANK.*** At the first command, the odd numbered troopers lead out 4 yards directly to the front,

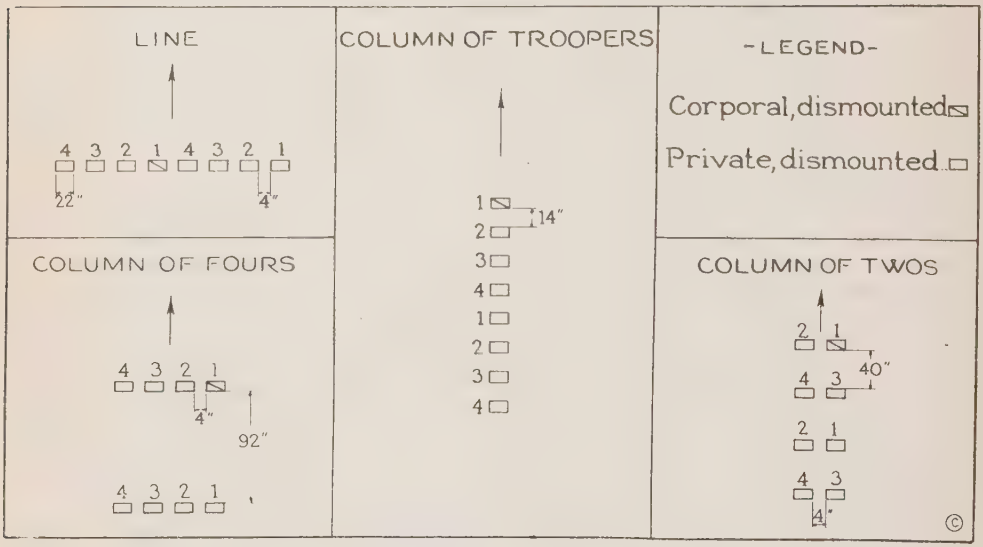


PLATE 46. Close-Order Formations of the Rifle Squad, Dismounted.

and, when armed with the rifle, all troopers place the rifle in the rifle scabbard. At the second command, all mount as prescribed in the course in Equitation. At the third command, the even numbered troopers ride forward into their respective intervals in the line.

The squad being in ***column of fours, twos, or troopers,*** the commands are: 1. ***Prepare to mount,*** 2. ***MOUNT.*** At the first command, the troopers open out fanwise from the center sufficiently to permit mounting without interference. Having mounted, they close to normal intervals without command.

The preparatory oral commands for mounting may be omitted. The squad then at the command: ***MOUNT*** completes, but not in unison, the movement as prescribed above.

To Dismount. The squad being mounted and in ***Line,*** the commands for dismounting are: 1. ***Prepare to dismount,*** 2. ***DISMOUNT;*** 3. ***FORM RANK.*** At the first command, the odd numbered troopers ride out 4 yards, directly to the front. At the second command, they dismount as prescribed in the course in Equitation. At the third command, the even numbered troopers lead into their respective intervals in the rank.

The third command is given only when it is desired to form the squad again in ***Line*** (dismounted). The squad may be dismounted, and, without forming rank, execute ***REST*** or ***AT EASE,*** be inspected, or caused to mount, etc.

The modifications for dismounting from *column of fours, twos,* or *troopers* correspond to those indicated for mounting from a like formation except that horses are not normally straightened in the column, unless the squad is moved forward (dismounted).

The preparatory command for dismounting may be omitted. The squad then, at the command: *DISMOUNT,* completes promptly, but not in unison, the movements as prescribed above.

To Dismiss the Squad. When dismounted the squad is marched to the troop parade, and there dismissed. Being at a halt, to dismiss the squad, the commands are *1. Inspection, 2. ARMS, 3. Port, 4. ARMS, 5. DISMISSED.*

When mounted, it is marched to the vicinity of the stables or picket line, where it is dismounted, rifles inspected, animals and equipment cared for, and then dismissed as provided above, except that rifles need not be again inspected.

Close-Order Drill.

Alignments. The squad may be aligned toward the right, left, or center. It is aligned by formal command only when halted.

The squad, when in *Line,* is habitually aligned toward the center. The corporal commands: 1. *Dress;* 2. *FRONT.* The troopers to the left of the corporal

Being in *Line* at *Stand to Horse.* 1. *Prepare to Mount,* 2. *Mount.* 3. *FORM RANK.*

PLATE 47. Being in Line, to Mount.

execute *EYES RIGHT;* those on the right of the corporal execute *EYES LEFT.*

When dismounted without horses, in order to insure the proper interval, each trooper, except the left trooper, places his left hand, with the fingers extended downward and joined, thumb along the forefinger, upon his left hip, with the heel of his hand resting against his hip bone near the belt; left elbow in the plane of his body. All troopers close upon the corporal until adjacent arms gain light contact. The corporal verifies the alignment of the squad. At the second command, each trooper drops his left arm smartly to his side and turns his head and eyes to the front.

When for any reason, it is desirable to align the squad to a flank the command is: 1. *Right (left),* 2. *DRESS;* 3. *FRONT.* The troopers align themselves toward the right (left) trooper as indicated above.

While in movement, the squad may be aligned by the caution *DRESS;* each trooper glances toward the guide, and makes sure that he is in proper alignment.

Being in Line, to Change Direction. 1. *Right (left) turn,* 2. *MARCH;* 3. *Forward,* 4. *MARCH;* or 3. *Squad,* 4. *HALT.* The corporal, after having given the second command, so regulates his march that the pivot trooper turns on an arc of a circle of 1 yard radius when dismounted, 2 yards when mounted at a walk, 4 yards when at a trot, 6 yards when at a gallop, and so that the trooper on the marching flank may preserve his alignment without increasing the pace or gait. Having completed the change of direction, the corporal gives the third and fourth commands, whereupon the squad either resumes its march in the new direction, or halts as the case may be. (See Plate 48).

Being in Line, to Form Column of Fours. 1. *Column of fours,* 2. *MARCH.* At the command of execution, the corporal's four moves to the front. The other

four decreases the gait one degree until uncovered, when it obliques to a position directly in rear of the corporal's four. (See Plate 49).

Being in Line, to Form Column of Twos. 1. *Column of twos,* 2. *MARCH.* At the command of execution, the corporal's two moves to the front. The other two of the corporal's four decreases the gait one degree until uncovered, when it obliques to a position directly in rear of the corporal's two. The four other than the corporal's also decrease the gait until uncovered, and forms column of twos, in a similar manner, in time for the right two of the second four to follow the left two of the corporal's four at the prescribed distance. (See Plate 50).

Being in Line to Form Column of Troopers. 1. *Column of Troopers,* 2. *MARCH.* At the command of execution the corporal moves directly to the

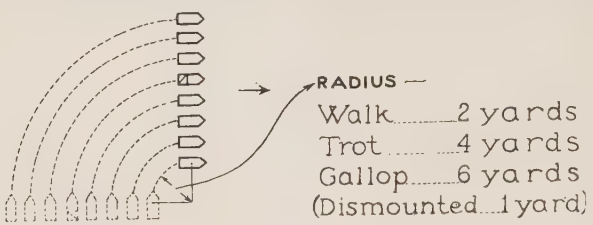


PLATE 48. Being in Line, to Change Direction.

PLATE 49. Being in Line, to Form Column of Fours.

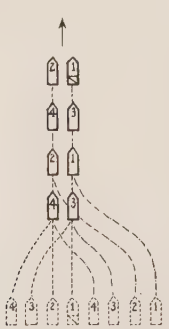


PLATE 50. Being in Line, to Form Column of Twos.

front. All other troopers decrease the gait or pace one degree, and as individually uncovered, follow the corporal in the order; 2, 3, and 4 of the corporal's four; and 1, 2, 3, and 4 of the other four.

Being in Column, to Change Direction. 1. *Column right (left),* 2. *MARCH.* At the command of execution, the leading four (two or trooper) executes a 90 degree turn in the direction ordered in the same general manner as prescribed for a change of direction from line. The succeeding elements of the column move forward and turn on the same ground as the leading element. (See Plate 51).

Column half right (left) is similarly executed by a change of direction of 45 degrees.

To make a slight change of direction the leader may command: ***INCLINE TO THE RIGHT (LEFT).***

Being in Column of Fours, to Form Column of Twos. 1. *Column of twos,* 2. *MARCH.* At the command of execution, the corporal's two moves to the front. All other twos decrease the gait or pace one degree and, as uncovered, follow the corporal's two at the proper distance in the order: left two of the corporal's four, right two of the second four, and left two of the second four.

Being in Column of Fours, to Form Column of Troopers. *1. Colmun of troopers, 2. MARCH.* The corporal's four executes column of troopers as previously described "Being in Line, to form column of Troopers." The second four executes the same movement in time to follow in column at the prescribed distance. (See Plate 53).

Being in Column of Twos, to Form Column of Troopers. 1. *Column of troopers,* 2. *MARCH.* At the command of execution, the corporal moves to the front. All other troopers decrease the gait or pace one degree, and, when uncovered, oblique to the right successively, following the corporal, at prescribed

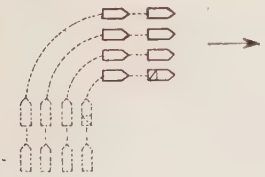


PLATE 51. Being in Column of Fours (Twos, Troopers), to Change Direction.

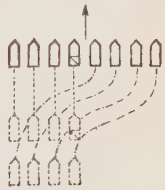


PLATE 52. Being in Column of Fours (Twos, Troopers), to Form Line.

PLATE 53. Being in Column of Fours, to Form Column of Troopers.

PLATE 54. Being in Column of Troopers, to Form Column of Fours.

distance, in the order: Left trooper of corporal's two, right trooper of the second two, left trooper of the second two, etc.

Being in Line, to Form Column of Fours to a Flank. 1. *Fours right (left),* 2. *MARCH.* At the command of execution, each four, aligning itself toward the pivot while turning, wheels so that the pivot trooper moves on an arc, as previously described *("Being in Line to change direction").* By this movement the corporal may be thrown out of his normal position in the squad. Therefore wheeling by fours is exceptional and should be employed only in an emergency.

Being in Column of Fours, to Form Line. 1. *Line,* 2. *MARCH.* At the command of execution, the leading four moves to the front. The rear four increases the gait one degree, and obliques to the right or left, depending upon the position of the corporal's four, so that upon its arrival abreast of the leading four, the corporal is in his normal position (in the center of the squad). (See Plate 52).

Being in Column of Twos, to Form Line. 1. *Line,* 2. *MARCH.* At the command of execution, the leading two moves to the front. The *Line* with the corporal in the center, is formed in the same general manner as described in the preceding paragraph, the rear two of each four increasing the gait one degree, and taking position on the left of the leading two.

Being in Column of Troopers, to Form Line. 1. *Line,* 2. *MARCH.* At the command of execution, the leading trooper moves to the front. The line, with the corporal in the center, is formed in the same general manner as previously described (Being in column of fours, to form line). The rear troopers of each four increasing the gait one degree, reach the line successively, and take their respective positions to the left of the leading trooper of their four.

Being in Column of Twos, to Form Column of Fours. 1. *Column of Fours,* 2. *MARCH.* At the command of execution, the leading two of each four moves to the front, the leading two of the rear four increasing the gait one degree and closing (when mounted) to 4 feet distance. The rear two of each four likewise increase the gait one degree, (when mounted), oblique to the left, and take position abreast of, and on the left of, its leading two.

Being in Column of Troopers, to Form Column of Fours. 1. *Column of fours,* 2. *MARCH.* At the command of execution, the leading trooper of each four moves to the front, the leading trooper of the rear four increasing the gait one degree and closing (when mounted) to 4 feet distance. The rear troopers of each four likewise increase the gait one degree (when mounted), oblique to the left, and successively take position abreast of, and on the left of, the leading trooper of their four. (See Plate 54).

Being in Column of Troopers, to Form Column of Twos. 1. *Column of twos,* 2. *MARCH.* At the command of execution, the odd numbered troopers move to the front, those other than the leading trooper increasing the gait one degree and closing (when mounted) to 4 feet distance. Each even numbered trooper likewise increases the gait one degree (when mounted), obliques to the left, and takes position abreast of, and on the left of, the odd numbered trooper who preceded him.

Being in Column of Fours, to Form Line to a Flank. 1. *Fours right (left),* 2. *MARCH.* The wheeling of the fours is as previously described (Being in line, to form column of fours to a flank). This is an exceptional movement, and should be employed only in an emergency.

To Move in an Oblique Direction Without Changing Front. Being in line: 1. *Right (left) half turn,* 2. *MARCH.* Being in column: 1. *Column half right (left),* 2. *MARCH.* When the command has gained the desired distance in the oblique direction the leader commands: 1. *Left (right) half turn,* or 1. *Column half left (right),* 2. *MARCH.*

Dismounted Close-Order Drill.

The principles governing dismounted formations and movements are the same as prescribed for mounted formations and movements, except as to pace. No increase in pace is made in executing a movement unless specifically ordered. Hence movements into line are not completed until the unit is halted; movements into column require that *mark time* be used by certain elements until movement is permitted to their new positions.

Being in Line, Dismounted, to Form Column of Troopers. 1. *Column of Troopers,* 2. *MARCH.* At the second command the leader moves (or if in march, continues moving) forward at quick time; all other troopers *mark time* until time for them to oblique to their proper places in the column, when they march in quick time.

Being in Column of Troopers, Dismounted, to Form Line. 1. *Line.* 2. *MARCH,* 3. *Squad,* 4. *HALT.* At the second command, the corporal moves

(or if in march, continues moving) forward in quick time, until halted by the fourth command. The other members of the squad, at the second command, move toward their proper places until they arrive on line when they halt abreast of the corporal.

Being in Column of Troopers, Dismounted, to Form Line, a Change of Pace Being Specified. 1. *Line, double time,* 2. *MARCH.* At the second command, the corporal moves forward in quick time. The other members of the squad move in double time toward their proper places until they arrive on line when they take up the quick time.

To Stack and to Take Arms.

Three rifles only are used to make the stack; rifles not so used are, in this connection, termed *loose rifles.*

Being in Line, Dismounted at a Halt to Stack Arms. *STACK ARMS.* No. 3 steps back and covers No. 2; No. 2 grasps his rifle with the left hand, at the upper band, and rests the butt between his feet, barrel to the front, muzzle inclined slightly to the front and opposite the center of the interval on his right, the thumb and forefinger raising the stacking swivel; No. 3 then passes his rifle, barrel to the rear, to No. 2, who grasps it between the bands with his right hand and throws the butt about 2 feet in advance of that of his own rifle and opposite the right of the interval. At the same time he allows the right hand to slip to the upper band, the thumb and forefinger raising the stacking swivel, which he engages with that of his own rifle. No. 1 raises his rifle with the right hand, carries it well forward, barrel to the front, the left hand guiding the stacking swivel, engages the lower hook of the swivel of his own rifle with the free hook of that of No. 3; he then turns the barrel outward into the angle formed by the other two rifles and lowers the butt to the ground so that it will be to the right of and against the toe of his right shoe. No. 2 lays loose rifles on the stack; No. 3 resumes his place in line. When each man has finished handling rifles, he takes the position of *Attention.* The instructor may then rest or dismiss the squad, leaving the arms stacked. On reforming, the men take their places in rear of the stacks.

Being in Line Dismounted, Behind the Stacks to Take Arms. *TAKE ARMS.* No. 3 steps back and covers No. 2; No. 2 returns the loose rifles, then grasps his own rifle with the left hand, the rifle of No. 3 with his right hand, grasping both between the bands. No. 1 grasps his rifle in the same way with the right hand. No. 1 disengages it by raising the butt from the ground, and then turning the rifle to the right, detaches it from the stack. No. 2 disengages and detaches his rifle by turning it to the left, and then passes the rifle of No. 3 to him. No. 3 resumes his place in line. All resume the *Order.*

Extended-Order Drill.

As set forth under General Principles, extended-order formations differ from close-order formations only in that intervals or distances, or both, are increased, depending upon the situation, mission, enemy, and terrain, and are specified in the command. Thus the squad may assume an extended-order formation in which the distance or interval or both, between fours, twos, or troopers, has been increased beyond close-order distance or interval. The formation within each four or two may be as desired.

The commands for extended-order formations are similar to those for close-order formations. For example: Being in any formation, to form an extended-order *Column of twos,* with five yards distance between twos, the command is: 1. *Column of twos at five yards,* 2. *MARCH.* Or being in any formation, to form an extended order line, with 5 yards interval between troopers, the command is: 1. *Line of troopers at 5 yards,* 2. *MARCH.* Similarly, being in any formation, to assume a line formation, with fours abreast at 20 yards

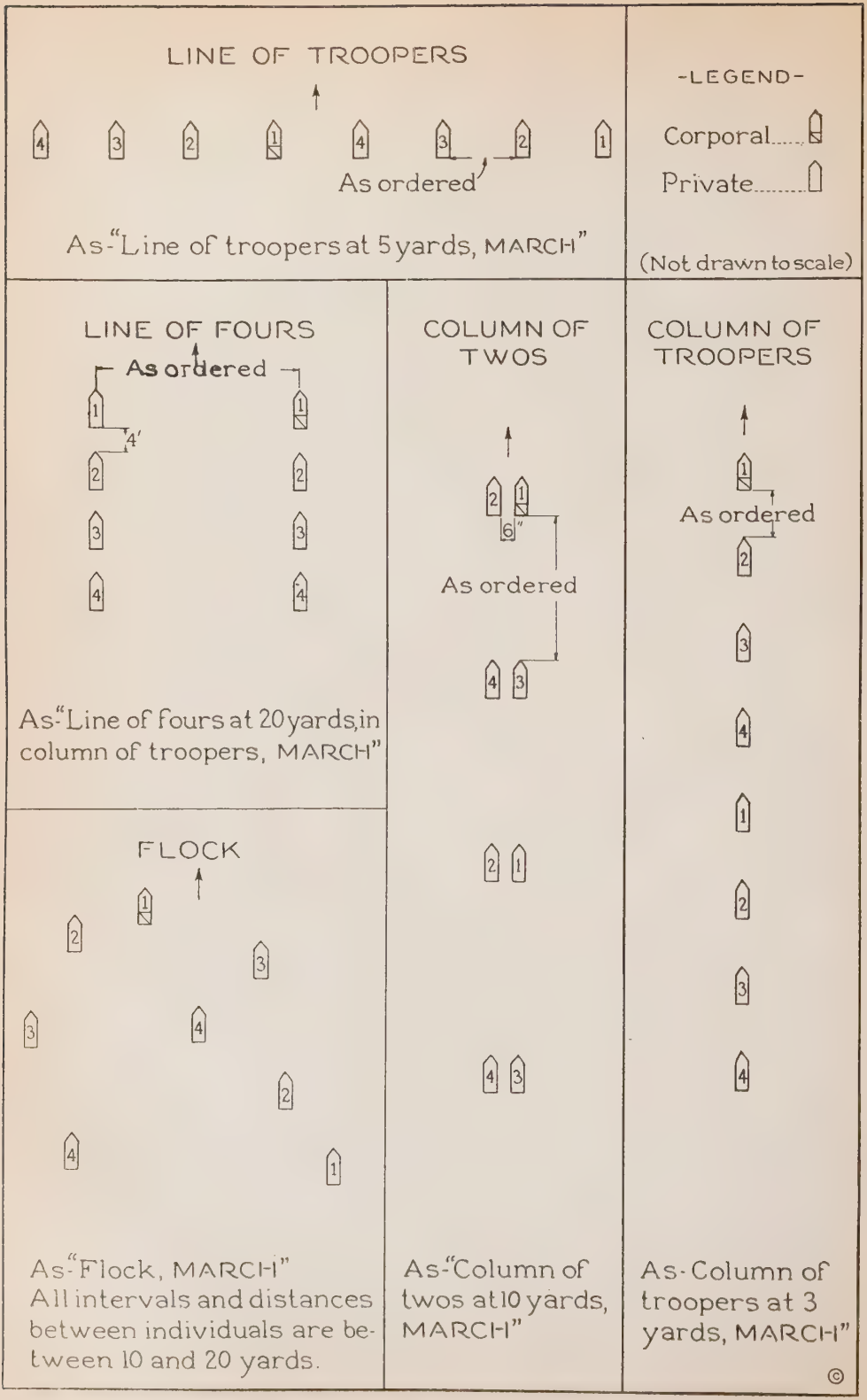


PLATE 55. Examples of Extended-Order Formations of the Rifle Squad, Mounted.

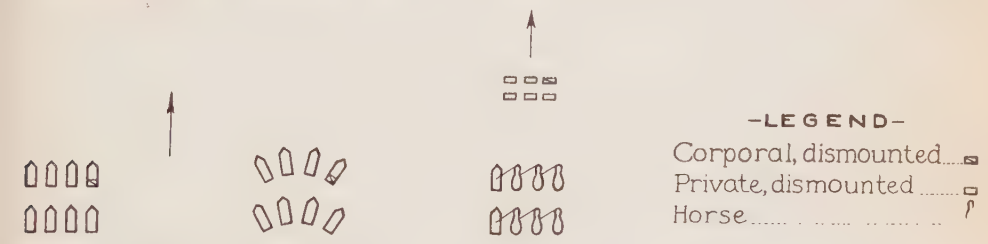
interval, each four in *Column of troopers,* the command is: 1. *Line of fours at 20 yards, in column of troopers, 2. MARCH.*

Flock. Being in any formation, to form *Flock,* 1. *Flock,* 2. *MARCH.* The corporal moves to the front. The troopers of the corporal's four assume an irregular formation to the left and rear of the corporal. The troopers of the other four assume an irregular formation to the right and rear of the corporal. Positions are taken at an increased gait. All individuals are separated by intervals and distances of not less than ten, or more than twenty, yards. The squad is the only unit for which this formation is prescribed.

The Assembly. The squad, being in disorder, is assembled by the commands: 1. *Assemble,* 2. *MARCH.* The leader takes position where he desires the squad to form, or moves in the desired direction. The troopers, increasing the gait one degree, ride in, and take their normal positions in *Line.* When a formation other than *Line* is desired, the leader cautions the desired formation as the troopers approach.

The Rally. The squad, being in any formation or in disorder, is rallied by the command: *RALLY.* The leader takes position where he desires the squad to form, or moves in the desired direction. All troopers ride, toward the leader, at gaits as rapid as consistent with control of their horses, and form *Line,* in any order, on his right and left. The squad being rallied, the leader causes fours to be counted.

To March to the Rear. Being deployed in line mounted or in any formation dismounted, the commands are: 1. *Troopers to the Rear,* 2. *MARCH.* At



Being in Column of Fours. 1. *Fight on Foot.* 2. *ACTION FRONT.*

PLATE 56. To Fight on Foot, Led Horses Mobile.

the command of execution, troopers turn individually *right* about, and march in the new direction.

To Resume the March to the Front. 1. *Troopers forward,* 2. *MARCH.* The movement is executed in the same general manner as the movement to the rear.

To Fight on Foot. In dismounting to fight on foot the reins not used in securing the horse are placed over the pommel, and the left stirrup is crossed, over the reins, in front of the pommel.

When link straps are not used to secure horses, snaffle reins will be used for that purpose.

With Led Horses Mobile. Prior to executing this movement, the squad is formed in *Column of fours* or *twos.* The commands are: 1. *Fight on foot,* 2. *ACTION FRONT (REAR, RIGHT or LEFT).*

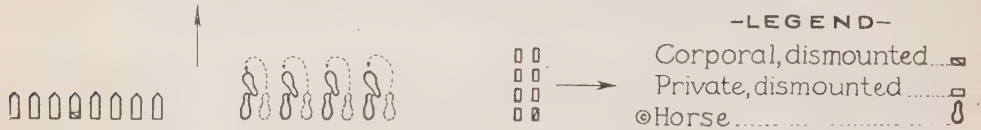
From column of fours. At the first command, the squad halts (if not already halted), and opens out as in executing *Prepare to mount.* At the second command, Nos. 1, 2, and 3 dismount. No. 3 passes the snaffle reins over his horse's head, and hands them to No. 4, who remains mounted. No. 2 secures his horse to the halter ring of No. 3's horse by means of the link strap (or snaffle reins). No. 1 secures his horse to No. 2's horse in the manner prescribed for

No. 2. After securing his horse, each dismounted trooper takes his rifle, and runs toward the squad leader, who orders the formation to be taken. The squad leader directs the disposition of led horses. (See Plate 56.)

From column of twos. This movement is executed in a similar manner as prescribed when disposed in *Column of fours* except odd numbers only dismount and pass their snaffle reins to the even numbered troopers of their respective twos (who remain mounted).

With Horses Immobile. Horses may be secured to trees, etc., or one trooper may be designated to hold all horses by the snaffle reins. Two other independent methods are as follows:

Horses Coupled. This movement is ordinarily executed from ***Line*** or ***Column of twos;*** but may be executed from any formation in an emergency. 1. ***Fight on foot, couple horses,*** 2. ***ACTION FRONT (REAR, RIGHT, or LEFT).***

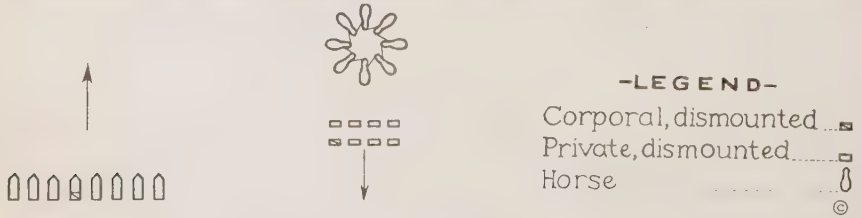


Being in Line. 1. *Fight on foot; couple horses.* 2. *ACTION RIGHT.*

PLATE 57. To Fight on Foot, Horses Immobile (Coupled).

At the first command, the squad halts (if not already halted). At the second command, the odd numbered troopers move a horse's length to the right front, turn left about, dismount, and lead their horses into the interval on the off side of the even numbered trooper's horse (viz., No. 1 on the off side of No. 2, and No. 3 on the off side of No. 4). Then, by means of the link strap, all troopers secure their mounts to the off cantle ring of the saddle on the other horse of their pair, the link strap being removed from the left snaffle ring of the bit before being used to secure the horse. All troopers then take their rifles, and run toward the squad leader, who orders the formation to be taken. See Plate 57.)

Horses Circled. This movement is executed from ***Line*** only. 1. ***Fight on foot, circle horses,*** 2. ***ACTION FRONT, (REAR, RIGHT, or LEFT).*** At the first command, the squad halts (if not already halted). At the second command, the guide (corporal) stands fast; the troopers on his right and left ride forward and to the left and right respectively, so as to form a circle with heads of the horses to the inside. All troopers dismount, and by means of the link strap (or snaffle reins) secure their horses to the halter ring of the



Being in Line (Only). 1. *Fight on foot; circle horses.* 2. *ACTION REAR.*

PLATE 58. To Fight on Foot, Horses Immobile (Circled).

animal on their left. All troopers then take their rifles, and run toward the squad leader, who orders the formation to be taken. When desirable, one trooper may be designated to remain with the horses. (See Plate 58.)

To Form on Foot.

Forming on foot is employed when it is desired to dismount all or a part of the squad for a purpose other than combat, or when haste is not essential. It is executed in a similar manner to ***Fight on foot.***

The command, when led horses are to be mobile, is: ***FORM ON FOOT;*** when led horses are to be immobile, the command is: ***FORM ON FOOT, COUPLE HORSES;*** or ***CIRCLE HORSES.*** In all cases, the dismounted troopers take their rifles, and proceed at quick time, or the pace ordered, toward the squad leader, who directs the formation to be taken and, when led horses are mobile, the disposition of led horses.

The Charge.

1. ***Pistol*** (or ***saber) attack,*** 2. ***CHARGE.*** The charge is normally executed from ***Line*** or ***Line of troopers,*** but may also be executed from ***Column of fours, twos,*** or ***troopers,*** or, in an emergency, from any formation. When executed by the squad acting alone, the corporal is out of ranks, and leading his squad.

From Line Formations. At the first command, the leader draws pistol (or saber), and moves in the direction of the objective at the gait best suited to conditions and the distance to be covered. As the objective is approached, the leader takes position in the center of the line, the gait is gradually increased to an extended gallop; and when at about 50 yards from the objective, the

PLATE 59. The Charge.

second command is given. All then urge their horses to full speed, assume the charging position and cheer. The unit is rallied immediately following the charge. (See Plate 59.)

From Column Formation. The charge is executed in the same general manner as from line formations except that the leader does not take position in ranks. The use of weapons, in such cases, is limited to leading and flank troopers only.

CHAPTER IX.

THE RIFLE PLATOON.

Organization. The cavalry rifle platoon is a tactical unit, an element of the troop; it consists of a platoon headquarters and two or more rifle squads. It is normally commanded by a lieutenant, assisted by certain enlisted personnel as provided in tables of organization.

Platoon Formations.

Platoon formations are the arrangement of the squads of the platoon with respect to each other in line (see Plate 60), column (see Plate 61), or echelon (see Plate 62). The squads may be in any desired squad formation. Of all the formations available to the platoon those listed below will generally be of the most use:

Platoon in ***Line, column,*** or ***echelon*** of squads.

Squads in ***Line, line of troopers, flock, column of fours, twos*** or ***troopers.***

Intervals and Distances. In any close-order line formation, the interval between squads is such that if ***Line*** be formed, an interval will remain between squads as follows: 6 inches (from knee to knee) when mounted; 18 inches between horses when dismounted with horses; and 4 inches when dismounted without horses.

The distance between squads (mounted, or dismounted with horses) in ***Column of fours, twos,*** or ***troopers*** is 4 feet; dismounted without horses, the distances are 92 inches, 40 inches, and 14 inches respectively. In any *other* close-order column formation, the distance between squads is such that if ***Line*** be formed by each squad, the new distance between squads will be equal to squad front less 3 yards when mounted or when dismounted with horses, and squad front when dismounted without horses.

Posts of Members of Platoon Headquarters. *Platoon leader.* The post of the platoon leaded in all line and echelon formation is 3 yards in front of the corporal of the base squad; in all column formations, his post is 4 feet in front of the corporal of the leading squad. Whenever necessary or desirable, he may leave his post, in which case the platoon sergeant takes the post and acts as direction leader.

Platoon sergeant. The post of the platoon sergeant in all line and echelon formations is 3 yards in rear of the right squad; in all column formations, his post is 4 feet in rear of the rear squad of the platoon, covering the right file. When necessary or desirable, the platoon sergeant may temporarily leave his post.

File closer sergeant. The post of the file closer sergeant, in all line and echelon formations, is 3 yards in rear of the left squad; in all column formations except ***Column of troopers,*** his post is 4 feet in rear of the rear squad of the platoon, covering the second file from the right; in ***Column of troopers,*** his post is 4 feet in rear of the platoon sergeant. When necessary or desirable, the file closer sergeant may temporarily leave his post.

Whenever the platoon dismounts to ***Fight on foot*** or to ***Form on foot,*** the file closer sergeant habitually takes charge of the led horses.

Messengers. The post of the messengers in all line and echelon formations is 3 yards in rear of the center, or right center squad; in all column formations, except ***Column of twos*** or ***troopers,*** their post is 4 feet in rear of the rear

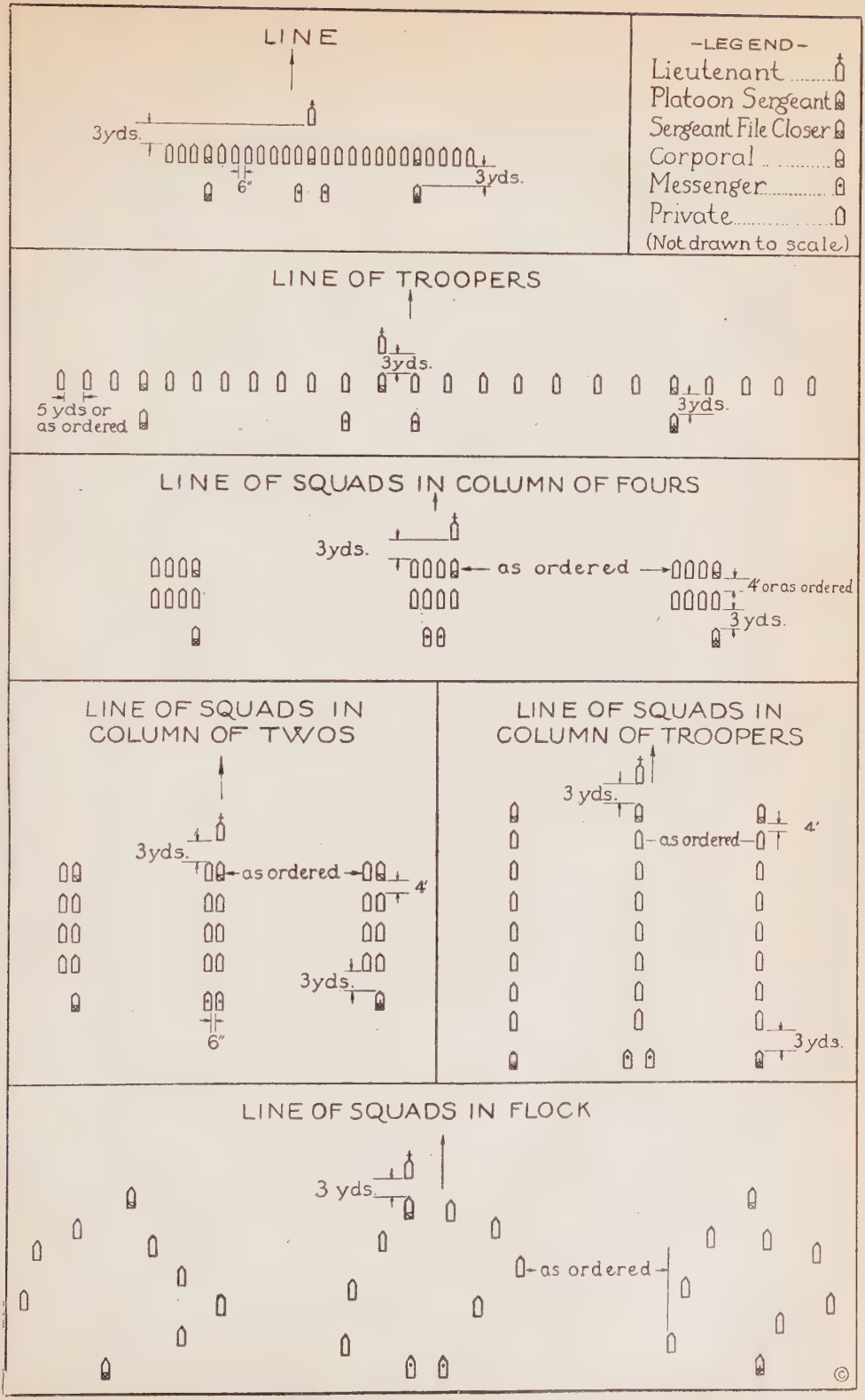


PLATE 60. Line Formations of the Rifle Platoon, Mounted.

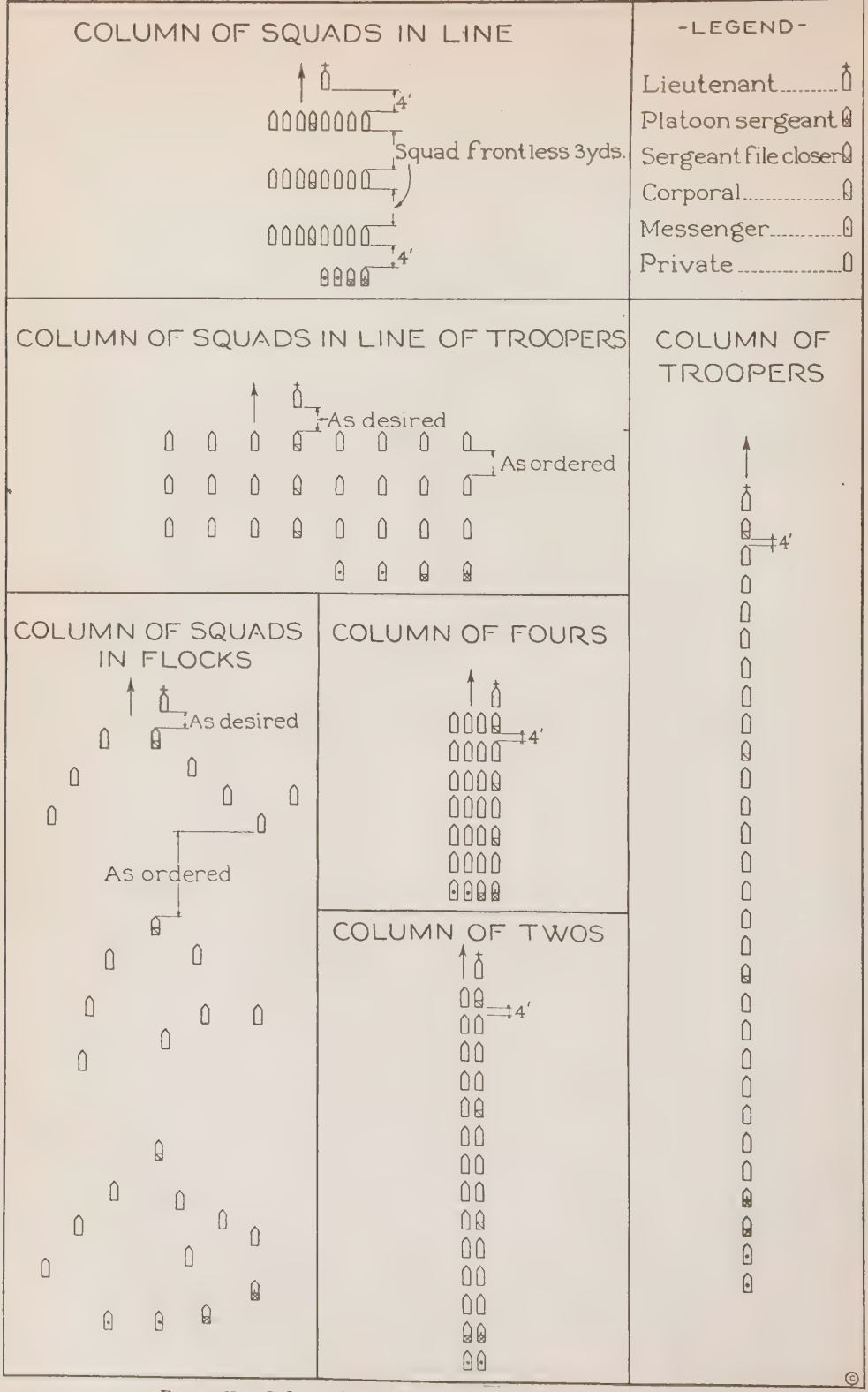


PLATE 61. Column Formations of the Rifle Platoon, Mounted.

squad of the platoon, covering the third and fourth files from the right; in *Column of twos,* their post is 4 feet in rear of the platoon sergeant and file closer sergeant respectively; in *Column of troopers* they conform to the formation, in rear of the file closer sergeant. When necessary or desirable, the platoon leader may assign other posts to the messengers.

To Form the Platoon. The platoon may be formed in any formation, mounted, dismounted with horses, or dismounted.

The platoon sergeant takes post so as to be facing the base squad of the platoon when formed, at the position of *Right shoulder arms* when dismounted, with or without horses, and armed with the rifle. He then commands: *FORM PLATOON,* and indicates the formation to be taken. The squads, having been previously formed by their corporals, take position, habitually in the order of their regular numerical designation from right to left in line, or from front to rear in column. The corporal of the base squad places his squad in the proper formation, so that he is facing the platoon sergeant at 3 yards distance. The other squads take their proper place with reference to the base. The platoon sergeant commands: *REPORT.* Beginning with the first squad, each corporal reports in turn: *FIRST (—) squad present* (or *— absent).* He then has the platoon count fours, and makes necessary adjustments. When the platoon is formed dismounted, with or without horses, the platoon sergeant then commands: 1. *Inspection,* 2. *ARMS;* followed by: 1. *Order,* 2. *ARMS.* The platoon sergeant then turns about, and, saluting, reports to the platoon leader: *Sir, the platoon is present or accounted for,* or *Sir, (so-and-so) absent.* He then takes his post at the trot (quick time if dismounted).

The platoon leader takes post 3 yards in rear of the platoon sergeant, facing the platoon, at such time as to receive the report of the platoon sergeant. He returns the salute of the platoon sergeant and directs: *TAKE YOUR POST.*

To Dismiss the Platoon. The platoon is dismissed by the platoon sergeant, at the order of the platoon leader, in the same general manner as prescribed for dismissing the squad.

Commands.

The platoon leader transmits his commands orally, by signal, or by messenger. He may employ, when applicable, the commands prescribed for the trooper and for the squad, proper substitutions in designations of the units being made when necessary.

Squad leaders, by means of signals or oral cautions, cause their squads to execute, at the command of the platoon leader, the proper squad movements to secure the required platoon formation.

The following movements for which commands are indicated are of frequent use.

Being in Line, to Form Column of Fours (Twos, Troopers). 1. *Column of Fours (Twos, Troopers),* 2. *MARCH.* The base squad executes the movement as prescribed in the Rifle Squad. Squad leaders of other squads form their squads in *Column of fours (twos, troopers)* and conduct them to their proper places in column. (Plate 63).

Being in Column, to Change Direction. 1. *Column right (left),* 2. *MARCH.* The leading squad executes the movement as prescribed in the Rifle Squad. The squads in rear advance to the point at which the leading squad changed direction, where they successively do likewise. (Plate 64.)

Column half right (left) is similarly executed by changing direction 45 degrees. To make a slight change of direction, the platoon leader may command *Incline to the right (left),* or he may simply point and move in the desired direction.

Being in Column of Fours, to Form Column of Twos or Troopers. 1. *Column of twos (troopers),* 2. *MARCH.* The leading squad executes the movement

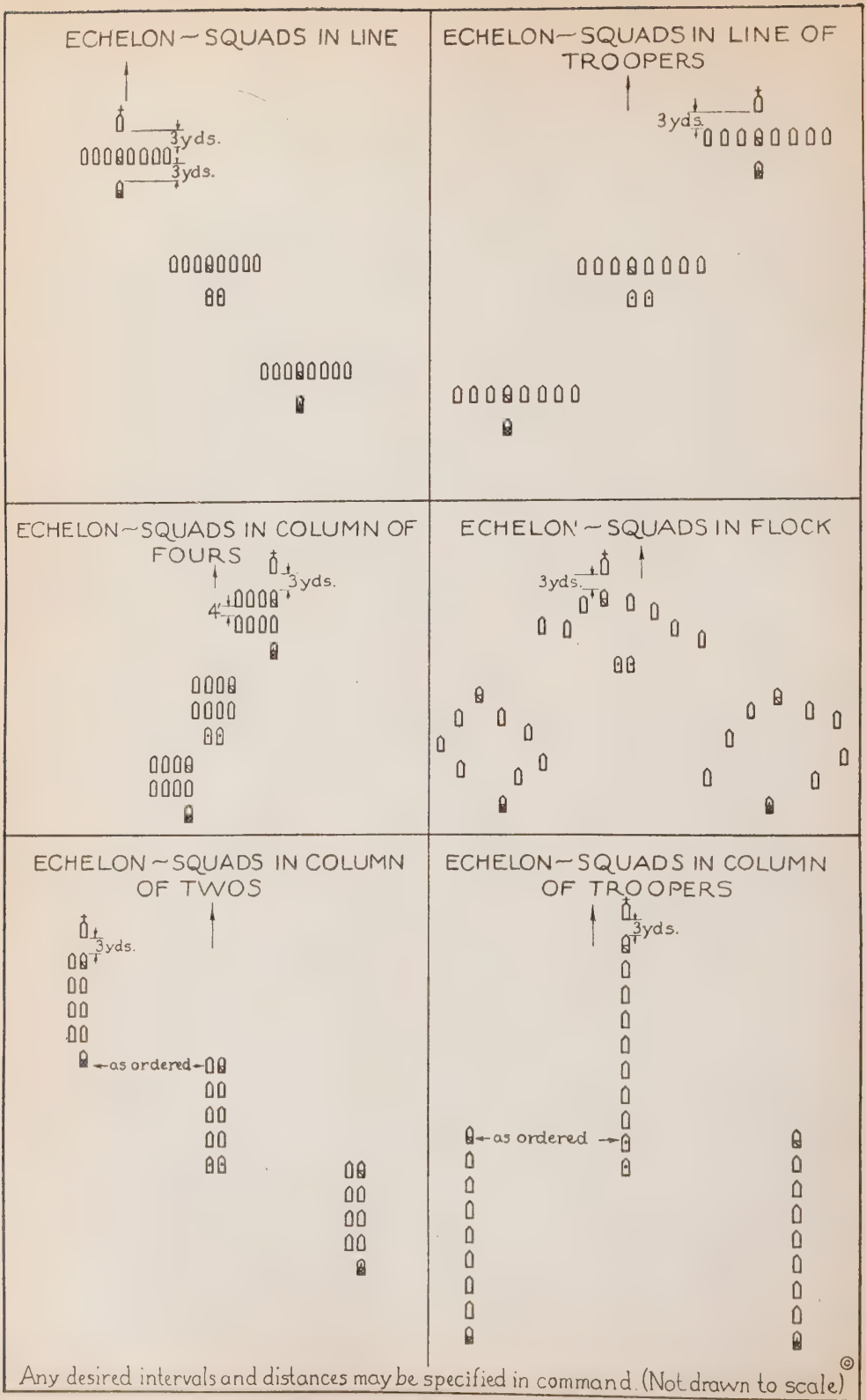

ECHELON – SQUADS IN LINE
3 yds.
3 yds.
ECHELON – SQUADS IN LINE OF TROOPERS
3 yds.
ECHELON – SQUADS IN COLUMN OF FOURS
3 yds.
4'
ECHELON – SQUADS IN FLOCK
3 yds.
ECHELON – SQUADS IN COLUMN OF TWOS
3 yds.
← as ordered →
ECHELON – SQUADS IN COLUMN OF TROOPERS
3 yds.
← as ordered →
Any desired intervals and distances may be specified in command. (Not drawn to scale)

PLATE 62. **Echelon Formations of the Rifle Platoon, Mounted.**

as prescribed for the rifle squad. All squads in rear decrease the gait one degree until they can conform to the movements of the base squad.

Being in Column of Troopers or Twos, to Form Column of Fours. 1. ***Column of fours,*** 2. ***MARCH.*** The leading squad executes the movement as prescribed for the rifle squad. Rear squads increase the gait one degree and close up on the leading squad, conforming to the formation that it adopts.

Being in Column of Fours (Twos, Troopers), to Form Line. 1. ***Line,*** 2. ***MARCH.*** The leading squad (base) forms line at once, as prescribed in the Rifle Squad. Squad leaders of rear squads conduct their units towards their proper places, increasing the gait one degree. They form line enroute, and upon arrival in place, regulate upon the base.

Being in Line, to Change Direction. 1. ***Right (left) turn,*** 2. ***MARCH,*** 3. ***Forward,*** 4. ***MARCH*** or 3. ***Platoon,*** 4. ***HALT.*** The platoon leader, followed at three yards by the corporal of the base squad, regulates the movement, which is executed as prescribed for the rifle squad.

Being in Line, to Form Column of Fours to a Flank. 1. ***Fours right (left),*** 2. ***MARCH.*** All fours simultaneously execute the movement as prescribed for

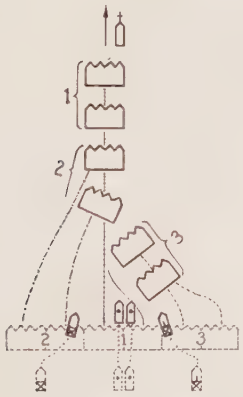


PLATE 63. Being in Line, to Form Columns of Fours (Twos, Troopers).

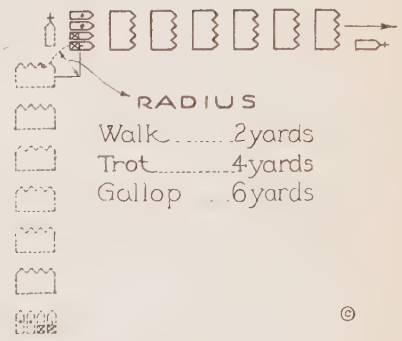


PLATE 64. Being in Column of Fours (Twos, Troopers), to Change Direction.

the rifle squad. This is an exceptional movement and should be used only in emergency.

Being in Column of Fours, to Form Line to a Flank. 1. ***Fours right (left),*** 2. ***MARCH.*** All fours simultaneously execute the movement as prescribed for the rifle squad. This is an exceptional movement and should be used only in an emergency.

Being in Line, to Form Line of Squads in Column of Troopers (Twos, Fours). ***1. Squads, Column of Troopers (Twos, Fours), 2. MARCH.*** Each squad assumes the formation as prescribed for the rifle squad. (See Plate 65.)

Being in any Column Formation, to Form in Echelon. 1. ***Right (left), front into echelon,*** 2. ***MARCH.*** Unless otherwise ordered, the leading squad is the base. It moves in the direction indicated by the platoon leader, followed by the rear elements in their proper places to the right (left) and rear of the base. (See Plate 66.)

To Form in Echelon on an Element Other Than the Leading Element. 1. ***On second squad (or other unit), echelon,*** 2. ***MARCH.*** The designated base squad moves in the indicated direction; the squad in advance of the base squad is conducted to its proper place to the *left and* rear of the base; the squad in rear of the base is conducted to its proper place to the *right* and rear of the base.

Special Movements.

To Rally. This movement may be executed from any formation, or from disorder. The command is: ***RALLY.*** Each squad leader repeats the command. All troopers ride as rapidly as consistent with control of their horses toward the platoon leader, who moves in the direction and at the gait desired. ***Line*** is formed by the troopers in the order of their arrival, 3 yards in rear of the platoon leader. The platoon leader causes the platoon to count fours as soon as it is rallied.

The Charge. The charge by platoon is executed in the same general manner as prescribed for the squad. File closers keep their normal posts during the movement.

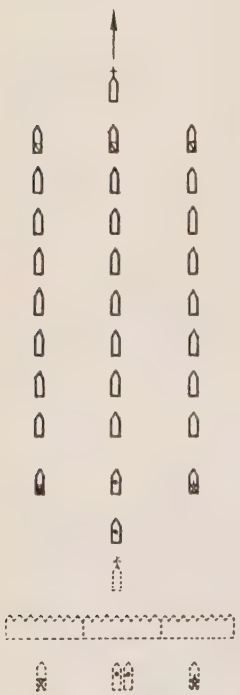


PLATE 65. Being in Line, to Form Line of Squads in Column of Troopers (Twos, Fours).

PLATE 66. Being in Column of Fours, to Form in Echelon.

To Fight on Foot, and to Form on Foot. These movements are executed by the platoon in a manner similar to that prescribed for the squad, with the following exceptions:

(1) The file closer sergeant is habitually in charge of the led horses.

(2) After dismounting, the squads are conducted, by their leaders, toward the platoon leader who directs the formation to be taken and disposition of led horses.

(3) Horses of individuals out of ranks are secured to the horses of any four, or coupled together in pairs, as directed by the platoon leader.

(4) The platoon may circle horses by squad or by platoon. The platoon is the largest command that circles horses as a unit. Larger commands circle horses by squad or by platoon.

To March to the Rear. 1. *Squads (or other units), to the rear,* 2. ***MARCH.*** At the second command the designated units each execute a turn of 180 degrees to the right and move in the new direction.

This movement is normally employed for short distances only. The posts of leaders, file closers, machine rifle platoons, headquarters detachments, and machine gun troops do not change unless directed by the commander.

The march to the front is resumed by the commands: *1. Squads (platoons, etc.) forward,* 2. ***MARCH.*** The movement is executed in the same general manner as the movement to the rear.

Dismounted Close-Order Drill.

As with the squad, the principles governing dismounted formations and movements are the same as prescribed for mounted formations and movements, except as to pace. No increase in pace is made in executing a movement unless specifically ordered.

CHAPTER X.

THE MACHINE-RIFLE SQUAD AND PLATOON.

THE MACHINE-RIFLE SQUAD.

Organization. The machine-rifle squad normally consists of a corporal, (the squad leader), and 6 troopers, 3 pack horses, and 2 machine rifles. The squad is divided into two parts, each part comprising a gun crew. Gun crews are referred to as crew No. 1, and crew No. 2 respectively. The corporal is the gunner of crew No. 1, and a selected private is the gunner of crew No. 2. In addition to its gunner, each crew consists of 1 ammunition carrier (who is also trained as an air scout), 1 horseholder, and 1 pack horse carrying the machine rifle and a prescribed quantity of ammunition. The additional horseholder and ammunition pack horse are provided for the entire squad.

Tables of organization provide machine-rifle squads in the proportion of one machine-rifle squad for each rifle platoon. These two units are trained to operate together as a team: when a rifle platoon operates alone, or when it dismounts for combat, a machine rifle squad habitually joins it.

The machine-rifle squad thereupon comes under the command of the rifle platoon commander.

Principles Controlling the Evolution of the Squad. The principles governing the evolution of the machine-rifle squad are the same as those provided for the rifle squad except where the presence of led horses necessitates variation as hereinafter indicated.

Dismounted, the squad forms and maneuvers as prescribed for the rifle squad. The squad ammunition pack horse holder completes the corporal's four.

To Mount. The machine-rifle squad being in *Line* at *Stand to horse,* the commands for mounting are: 1. *Prepare to mount,* 2. ***MOUNT,*** 3. ***FORM RANK.*** At the first command, the gunners and carriers lead forward 4 yards, the carrier of crew No. 2 inclining slightly to the right. Troopers armed with the service rifle place the rifle in the rifle scabbard. At the second command, all mount as described in the course of Equitation. At the third command, the horseholders with their pack horses ride forward into their intervals in the line.

To Dismount. The machine-rifle squad being mounted and in *Line* the commands for dismounting are: 1. *Prepare to dismount,* 2. ***DISMOUNT,*** 3. ***FORM RANK.*** At the first command, all gunners and carriers ride 4 yards to the front, the carrier of crew No. 2 inclining slightly to the right. At the second command, all troopers dismount as described in the course in Equitation. At the third command, the horseholders with the pack horses lead forward into their respective intervals in the line.

Formations (Mounted).

Line. This is a close-order formation in which the corporal gunner is in the center of his squad. From right to left, the squad is arranged in the following order: gunner of crew No. 2, pack horse of crew No. 2, horseholder of crew No. 2, carrier of crew No. 2, corporal gunner of crew No. 1, pack horse of crew No. 1, horseholder of crew No. 1, and carrier of crew No. 1. When present, the horseholder of the squad ammunition pack horse, with the pack horse on his right, is posted 3 yards in rear of the corporal gunner. (See Plate 67.)

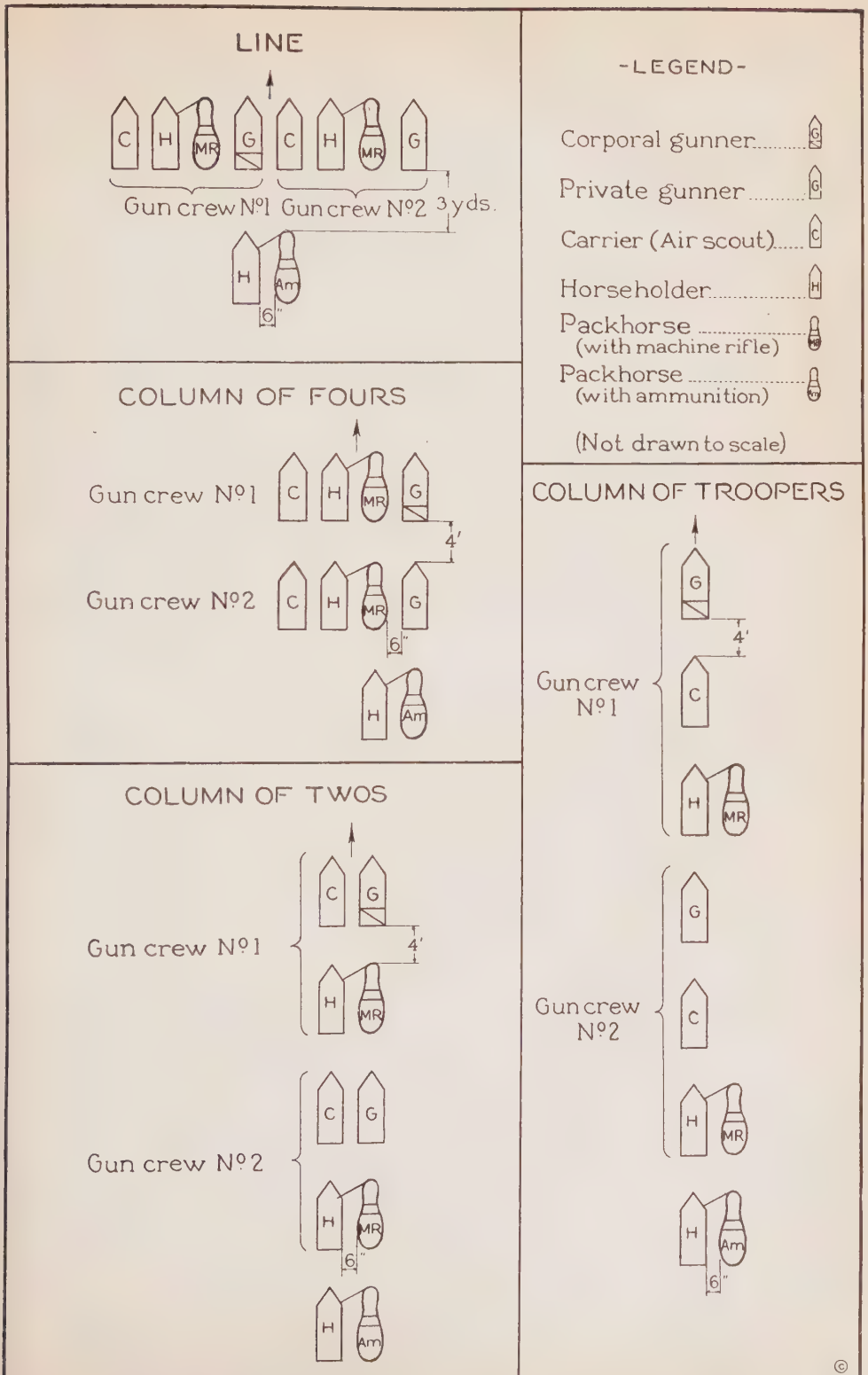


PLATE 67. Close-Order Formations of the Machine-Rifle Squad, Mounted.

Column of Fours. In this formation, gun crew No. 1 is formed as prescribed for ***Line.*** Gun crew No. 2, in the same formation, is posted in rear of gun crew No. 1. The squad ammunition pack horse (with horseholder on his left), when present, is posted in rear of the right file. (See Plate 67.)

Column of Twos. In this formation, the machine-rifle squad is arranged in twos in the following order from front to rear: leading two—corporal gunner on the right, carrier of crew No. 1 on the left; second two—pack horse of crew No. 1 with horseholder on the left; third two—gunner crew No. 2 on the right,

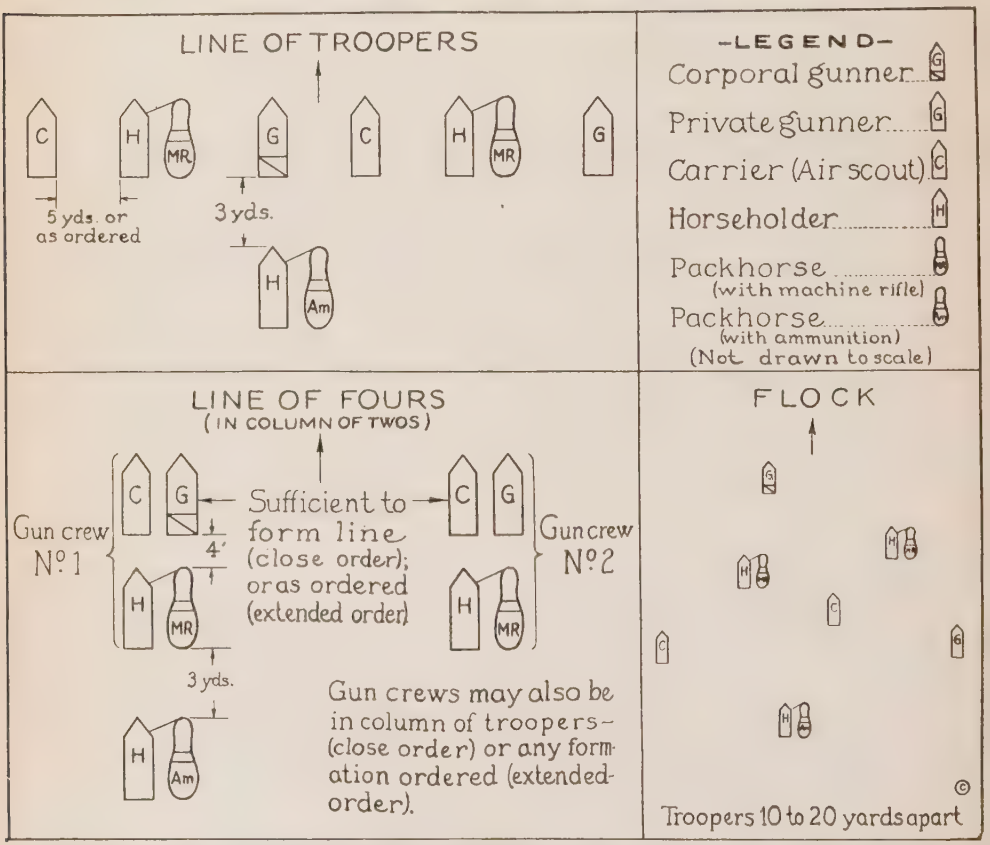


PLATE 68. Close- and Extended- Order Formations of the Machine Rifle Squad, Mounted.

carrier of crew No. 2 on the left; fourth two—pack horse of crew No. 2 with horseholder on the left; fifth two—squad ammunition pack horse with horseholder on the left. (See Plate 67.)

Column of Troopers. In this formation, the machine rifle squad is arranged in column in the following order: Corporal gunner, carrier of crew No. 1, horseholder of crew No. 1 with pack horse on his right, gunner of crew No. 2, carrier of crew No. 2, horseholder of crew No. 2 with pack horse on his right, horseholder of squad ammunition pack horse with pack horse on his right. (See Plate 67.)

Line of Fours. In this formation, the machine rifle squad is arranged as follows: crew No. 1 is on the left; crew No. 2 on the right of and abreast of crew No. 1. In close-order formations, the gun crews may be in ***Column of twos or troopers;*** in either case the interval between gun crews is just sufficient to form ***Line,*** with normal interval between troopers and between troopers

and pack horses. In extended order formations, the gun crews may be in any formation ordered with such interval between gun crews as may be designated. The post of the squad ammunition pack horse and horseholder is, in all cases, 3 yards in rear of gun crew No. 1. (See Plate 68.)

Line of Troopers. In this formation, the machine-rifle squad is deployed, with such intervals as may be designated in the command, in the same order from right to left as specified for ***Line.*** The position of the squad ammunition pack horse and horseholder is the same as prescribed for ***Line.*** (See Plate 68.)

Flock. In this formation, the machine rifle squad is arranged with the corporal leading, gun crew No. 1 deployed, as in ***Line of Troopers*** at irregular intervals and distances, to his left and rear, and gun crew No. 2 similarly disposed to his right and rear. The squad ammunition pack horse and horseholder follow in rear of the center of the squad. Gunners, carriers, and horseholders with pack horses are separated from each other by intervals and distances of not less than 10, or more than 20, yards. (See Plate 68.)

Movements.

The following movements are executed by the machine-rifle squad in the same manner and by the same commands as prescribed for the rifle squad.

(1) Being in a line formation, to change direction.
(2) Being in column formation, to change direction.
(3) Being in ***Line,*** to form ***Column of fours*** to the flank.
(4) Being in ***Column of fours,*** to form ***Line*** to a flank.
(5) Being in any formation, to form ***Flock.***
(6) Being in disorder, to ***Assemble.***

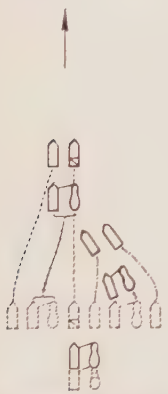


PLATE 69. Being in Line, to Form Column of Twos, the Machine Rifle Squad (Movement Not Yet Completed).

PLATE 70. Being in Column of Twos, to Form Line, the Machine Rifle Squad.

(7) Being in any formation or in disorder, to ***Rally.***

Being in Line, to Form Column of Fours. 1. ***Column of fours,*** 2. ***MARCH.*** At the command of execution the corporal's four (gun crew No. 1) moves to the front. The other four (gun crew No. 2(decreases the gait one degree until uncovered, when it obliques to the left to a position directly in rear of the corporal's four. The squad ammunition pack horse and horseholder decrease the gait one degree until such time as they can take their proper position in the formation.

Being in Line to Form Column of Twos. 1. ***Column of twos,*** 2. ***MARCH.*** At the command of execution, the corporal gunner and the carrier of crew No. 1 move to the front, the carrier closing on the gunner; all other members of the squad decrease their gait one degree (until time to take proper place in the

column). The corporal gunner and carrier of crew No. 1 are followed, in turn, by the other twos of the squad in their proper order. (See Plate 69.)

Being in Line, to Form Column of Troopers. 1. *Column of troopers,* 2. *MARCH.* At the command of execution, the corporal gunner moves to the front all other troopers decrease their gait one degree (until time to take proper place in the column), and, in turn, follow the corporal in their proper order in the column.

Being in Column of Fours, to Form Column of Twos. 1. *Column of twos,* 2. *MARCH.* The movement is executed in the same general manner as, *Being in Line, to form column of twos.*

Being in Column of Fours, to Form Column of Troopers. 1. *Column of troopers,* 2. *MARCH.* The movement is executed in the same general manner as, *Being in Line, to form column of troopers.*

Being in Column of Twos, to Form Column of Troopers. 1. *Column of troopers,* 2. *MARCH.* The movement is executed in the same general manner as, *Being in line, to form column of troopers.*

Being in Column of Fours, to Form Line. 1. *Line,* 2. *MARCH.* At the command of execution, the leading four moves to the front. The rear four obliques to the right, increasing the gait one degree, and takes its position on the right and abreast of gun crew No. 1. The squad ammunition pack horse and horseholder follow the squad in their prescribed position.

Being in Column of twos, to Form Line. 1. *Line,* 2. *MARCH.* At the command of execution, the corporal gunner moves to the front, the carrier of gun crew No. 1 inclines to the left sufficiently far to form an interval into which the horseholder and pack horse of gun crew No. 1 ride at an increased gait (of one degree). Gun crew No. 2 increases its gait one degree; the gunner obliques to the right forming an interval between himself and the corporal gunner, in which the carrier, horseholder and pack horse of gun crew No. 2 take their proper positions. The squad ammunition pack horse and horseholder follow in their prescribed position. (See Plate 70.)

Being in Column of Troopers, to Form Line. 1. *Line,* 2. *MARCH.* The movement is executed in the same general manner as, *Being in column of twos, to form Line.*

Being in Column of Twos, to Form Column of Fours. 1. *Column of fours,* 2. *MARCH.* At the command of execution, each gun crew forms *Line,* in the same manner as prescribed for *Being in column of twos, to form Line.* Gun crew No. 2 takes its proper position in rear of gun crew No. 1, followed by the squad ammunition pack horse and horseholder.

Being in Column of Troopers, to Form Column of Twos. 1. *Column of twos,* 2. *MARCH.* At the command of execution, the corporal gunner moves to the front. All other troopers increase their gait one degree, and form twos in their proper positions in the column. The squad ammunition pack horse and horseholder take their prescribed position.

Being in Column of Troopers, to Form Column of Fours. *1. Column of fours,* 2. *MARCH.* At the command of execution, the corporal gunner moves to the front. All other troopers increase their gait one degree, each gun crew forming *Line* as prescribed for *Being in column of troopers, to form Line.* Gun crew No. 2 takes its position in rear of gun crew No. 1, and the squad ammunition pack horse with horseholder follow in prescribed position.

To Fight on Foot.

In dismounting to *Fight on foot,* the reins not used in securing the horse are placed over the pommel, and the left stirrup is crossed over the reins in front of the pommel.

With Led Horses Mobile. Prior to executing this movement the machine-rifle squad is formed in *Column of fours.* The commands are: 1. *Fight on foot,* 2. *ACTION FRONT (REAR, RIGHT, or LEFT).* At the first command, the squad halts (if not already halted), and opens out as in executing *Prepare to dismount.* At the second command, all gunners and carriers dismount. Each carrier then passes his snaffle reins to the horseholder of his gun crew, runs to the crew pack horse and secures the ammunition. Each gunner fastens his horse to the halter ring of the crew pack horse (by means of the link strap), and then secures his machine rifle. The corporal gunner takes post where he desires the squad to form, and as the dismounted troopers approach, cautions the formation to be taken. When the squad is acting alone, the squad leader directs the disposition of led horses.

With Horses Immobile. Horses may be secured to trees, etc., or one horseholder may be designated to hold all horses by the reins. Two other independent methods are *horses coupled* and *horses circled.*

Horses Coupled. This movement is ordinarily executed from *Line* or from *Column of twos,* but may be executed from any formation in an emergency. The commands are: 1. *Fight on foot, couple horses,* 2. *ACTION FRONT (REAR, RIGHT,* or *LEFT).*

Horses coupled, from line. At the first command, the squad halts (if not already halted). At the second command, gunners and carriers ride 4 yards to the front. Each gunner turns left about so as to place the off side of his horse along side of the off side of his carrier's horse. All troopers then dismount, and couple horses as prescribed in the Rifle Squad, each gunner linking his horse with his carrier's horse, and each horseholder with his pack horse. The gunners secure their machine rifles, and the carriers their ammunition. The corporal takes post where he desires the squad to form, and as the troopers approach, cautions the formation to be taken.

Horses coupled, from column of twos. At the first command, the squad halts (if not already halted). At the second command, each gunner turns to the right and then left about, so as to place the off side of his horse alongside of the off side of his carrier's horse. The movement is then completed as prescribed from *Line* above.

Horses Circled. The commands are: 1. *Fight on foot, circle horses,* 2. *ACTION FRONT, (REAR, RIGHT or LEFT).* The movement is executed from *Line* only and in the same general manner as prescribed for the rifle squad. The horseholder with the squad ammunition pack horse joins the circle.

To Form on Foot. Forming on foot is employed when it is desired to dismount all or a part of the squad for a purpose other than combat, or when haste is not essential. It is executed in a similar manner to *Fight on foot.*

The command, when led horses are to be mobile is: *FORM ON FOOT;* when led horses are to be immobile the command is: *FORM ON FOOT, COUPLE HORSES (or CIRCLE HORSES).* In cases where the machine rifles and ammunition are not to be removed, the corporal cautions, *Machine rifles and ammunition remain in pack.* In all cases, the dismounted troopers proceed at quick time, or the pace ordered, toward the squad leader, who directs the formation to be taken and, when led horses are mobile, the disposition of led horses.

The Charge.

The commands are: 1. *Pistol attack,* 2. *CHARGE.* The charge is normally executed from *Line* or *Line of troopers,* but may be executed from any formation in an emergency. When executed by the squad acting alone, the corporal is out of ranks and leading his squad.

From Line Formations. At the first command, the leader draws pistol, and moves in the direction of the objective at the gait best suited to conditions and

the distance to be covered. As the objective is approached, the leader takes position in the center of the lines, the gait is gradually increased to an extended gallop; and when about 50 yards from the objective, the second command is given. All then urge their horses to full speed, assume the charging position and cheer. The unit is rallied immediately following the charge. Horseholders (leading pack horses) use their pistols as a means of self protection only.

From Column Formations. The charge is executed from column formations in the same general manner as prescribed for the rifle squad.

MACHINE-RIFLE PLATOON.

Organization. The machine-rifle platoon is a tactical unit, an element of the rifle troop, and consists of a platoon headquarters and two or more machine

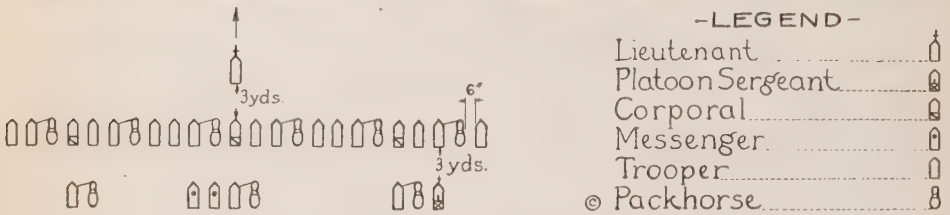


PLATE 71. The Machine-Rifle Platoon Mounted, in Line.

rifle squads. It is normally commanded by a lieutenant, assisted by certain enlisted personnel as provided in tables of organization. These tables provide one machine-rifle platoon for each rifle troop.

Formations. Platoon formations are the arrangement of the squads of the platoon with respect to each other in line, column or echelon. The squads may be in any desired squad formation.

The machine-rifle platoon conforms to the formations of rifle platoons as closely as its drill and composition permit.

Movements. Unless otherwise noted below, rules prescribed for the rifle platoons apply to the machine-rifle platoon.

Special Movements.

To Rally. This movement may be executed from any formation, or from disorder, The command is: ***RALLY.*** Each squad leader repeats the command, and rallies his squad, which he conducts, as rapidly as consistent with the control of the horses, toward the platoon leader, who moves in the direction and at the gait desired. The platoon forms ***Line,*** in the order of arrival of squads, in rear of the platoon leader.

The Charge. The charge by platoon is executed in the same general manner as prescribed for the machine-rifle squad. File closers keep their normal posts during the movement.

To Fight on Foot, and to Form on Foot. These movements are executed in the same general manner as prescribed for the machine-rifle squad, with the following exceptions:

(1) The platoon sergeant is habitually in charge of the led horses.

(2) After dismounting, the squads are conducted, by their leaders, toward the platoon leader, who directs the formation to be taken and the disposition of led horses.

(3) Horses of individuals out of ranks are secured to the horses of any four, or coupled together in pairs, as directed by the platoon leader.

(4) The platoon may circle horses by squad or by platoon.

(5) When the machine-rifle platoon, within the troop, dismounts to fight on foot, and the squads have joined their respective rifle platoons (to which they are permanently assigned for such action) the machine rifle platoon leader and messengers report to the troop commander, as part of troop headquarters.

CHAPTER XI.

THE RIFLE TROOP.

Organization. The rifle troop is a tactical and an administrative unit, and an element of the squadron. It consists of a troop headquarters, two or more rifle platoons and a machine rifle platoon. It is normally commanded by a captain, who is assisted by certain commissioned and enlisted personnel as provided in tables of organization. In peace, the organization of the rifle troop provides for 3 rifle platoons and a machine-rifle platoon of 3 squads (one machine-rifle squad for each platoon). In time of war, this organization is increased by one rifle platoon, and one machine-rifle squad. For tactical purposes, the war-strength troop may be divided into two parts called *half troops,* one half troop being commanded by the troop commander, the other by the junior captain. The half troop is maneuvered by the same commands and in the same manner as the troop. The troop is the largest unit that executes the manual of arms, steps, facings, and so on, in unison at the command of the leader.

Troop Formations. Troop formations are the arrangement of the platoons

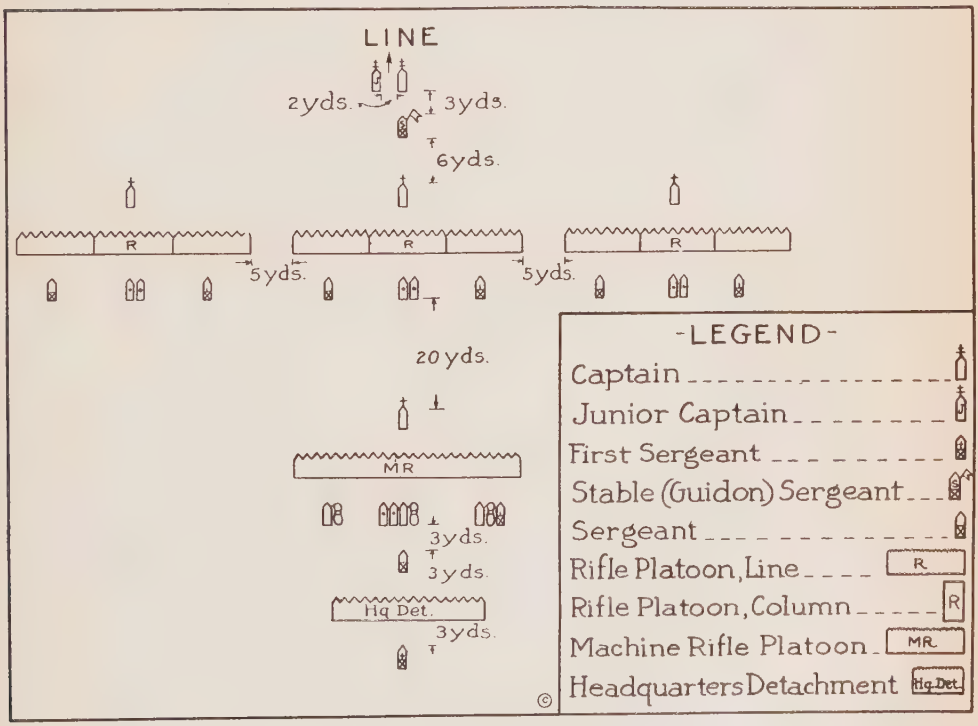


Plate 72. Formations of the Rifle Troop, Mounted: Line.

of the troop with respect to each other in line, column, or echelon. The platoons and squads may be in any desired platoon and squad formation. Of the many formations available, those listed below will generally be most used:

Troop in ***Line, column,*** or ***echelon of platoons.***

Platoons in ***Line, column,*** or ***echelon of squads.***

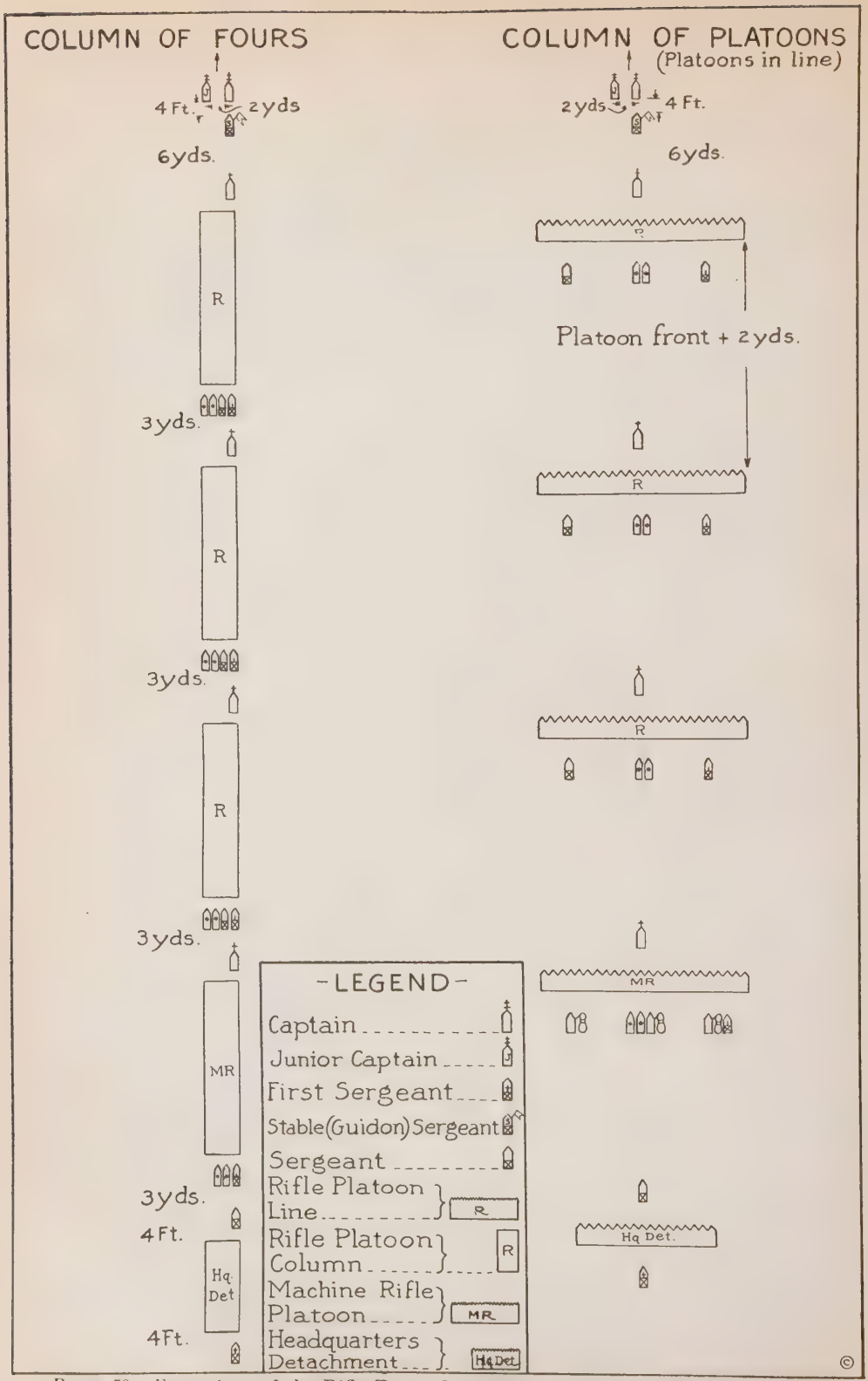


PLATE 73. Formations of the Rifle Troop, Mounted: Column of Fours; Column of Platoons, Platoons in Line.

Squads in *Line, line of troopers, column of fours, twos,* or *troopers.*

Intervals and Distances. In any close-order line formation, the interval between platoons is such that if *Line* be formed an interval of 5 yards will remain between platoons.

The distance between platoons in *Column of fours, twos,* or *troopers* is 3 yards. In any *other* close-order column formation, the distance between platoons is such that if *Line* be formed by each platoon, the new distance between platoons will be equal to platoon front plus 2 yards when mounted or when dismounted with horses, and platoon front plus 5 yards when dismounted without horses.

Machine-Rifle Platoon. The machine-rifle platoon conforms to the formation of rifle platoons as closely as its drill and composition permit. In the various troop formations, the machine-rifle platoon is located as follows:

Line formations. In all line formations, the machine-rifle platoon follows the base platoon at 20 yards distance.

Column formations. In all column formations, the machine-rifle platoon follows the rearmost rifle platoon at the same distance as prescribed for the rifle platoon.

Echelon formations. In all echelon formations, the machine-rifle platoon follows the base, in a position less advanced than the rearmost rifle platoon by a distance equal to that prescribed for each rifle platoon.

Posts of Officers, and Others. The post of the troop commander in all formations is 6 yards in front of the leader of the base platoon. Whenever the captain is accompanied by any of the troop headquarters, this distance is measured between the rearmost element or trooper of troop headquarters and the leader of the base platoon. Whenever necessary or desirable, the troop commander may leave his post, first indicating to the junior captain, or to the leader of the base platoon, his wishes regarding direction, gait, etc.

In all troop formations, the junior captain is posted abreast and 2 yards to the left of the troop commander; though when desirable or necessary, the troop commander may assign him a different post. When commanding a half troop, the post of the junior captain is the same as that prescribed for a troop commander.

The troop headquarters detachment (less the first sergeant and stable sergeant), in all formations, is posted 3 yards in rear of the file closers of the machine-rifle platoon; this distance is measured between the leader of the detachment and the file closers. The leader of the detachment is the senior noncommissioned officer present. His post is 3 yards in front of the center of the detachment in line formations, and 4 feet in front of the right file in column formations. The detachment conforms in its formations to the formations of the rifle platoons. When individuals of the detachment accompany the troop commander, they are posted, in *Line,* 3 yards in his rear, except when the troops is in *Column of fours, twos,* or *troopers,* they conform to the formation of the troop. The guidon sergeant (stable sergeant), when not in charge of led horses, covers the troop commander.

The first sergeant, when accompanying the troop commander, is posted on the right of the post designated for the guidon sergeant; when not accompanying the troop commander, his post is 3 yards in rear of the troop headquarters detachment.

The machine-rifle platoon leader and messenger (when the machine-rifle squads have joined their respective rifle platoons) accompany the troop commander, and are posted respectively, on the left of the junior captain, and on the left of the troop headquarters accompanying the troop commander.

MANUAL OF THE GUIDON.

The guidon is a troop emblem, and is carried at all troop formations, unless

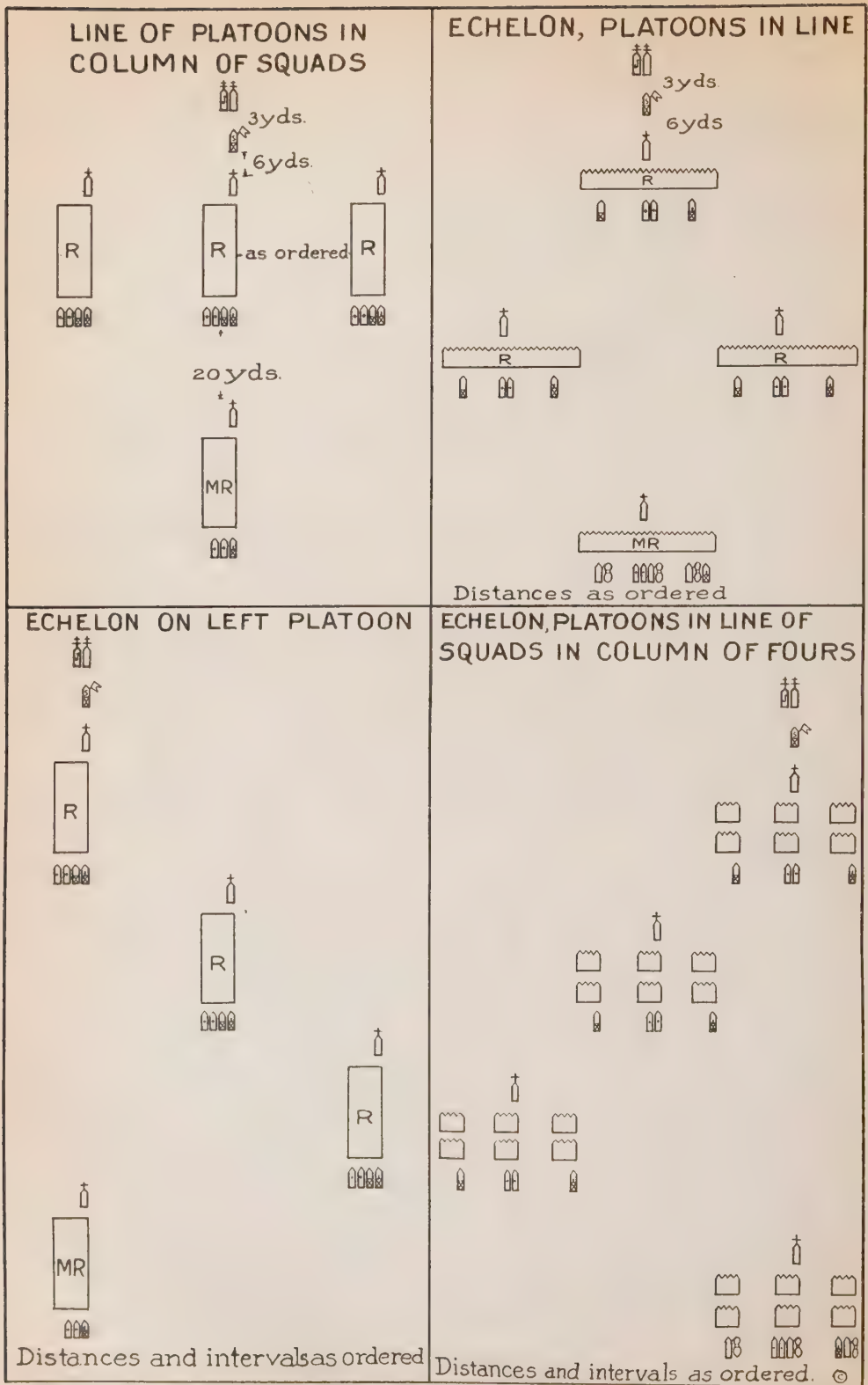


PLATE 74. Formations of the Rifle Troop, Mounted: Line of Platoons; Echelon Formations.

otherwise directed. It is carried by a noncommissioned officer, usually the stable sergeant.

During campaign, the guidon must not be exposed to observation of the enemy; however, when deemed expedient, it may be uncased and waved at a rallying point to assist in expediting the assembly following disorganization due to combat.

In garrison, the guidon, when not being carried in formation, is kept in the troop orderly room.

In camp, except when being carried in formation, the guidon is displayed in front of the tent of the troop commander; from retreat to reveille, and during inclement weather, it is furled and cased.

Manual of the Guidon, Mounted Formation.

Stand to Horse. At the command: *STAND TO HORSE,* the ferrule of the lance rests on the ground, on a line with, and touching, the toe of the left shoe, lance vertical, left hand at the height of the neck, elbow and forearm closed against the lance.

To Mount and Dismount. *To mount.* At the command ***Prepare to mount,*** the lance is raised slightly from the ground (while stepping back). Upon halting, the ferrule is placed on the ground about one foot in front of the left forefoot of the horse; the left hand continues to grasp the lance, as well as the reins and a lock of mane or crest of neck. After mounting, the lance is grasped with the right hand, raised over the horse's neck and over the reins then lowered on the right side of the saddle, the ferrule being inserted in the stirrup socket.

To Dismount. At the command ***Prepare to dismount,*** the lance is raised from the stirrup socket, passed over the horse's neck and over the reins then lowered to the ground, the ferrule resting about one foot in front of the left forefoot of the horse. The lance is then grasped in the left hand.

To Carry Guidon (mounted). The ferrule is inserted in the stirrup socket, the right hand grasping the lance, forearm nearly horizontal (the arm through the sling), lance vertical. ***Carry guidon*** is the habitual position of the guidon when the troop is mounted.

Manual of the Guidon, Dismounted Formation.

Carry Guidon. The lance is held vertically in the right hand, between thumb and fingers, back of hand to right, arm extending downward, lance resting in hollow of the right shoulder, the ferrule about 6 inches from the ground. (When holding a horse, the lance is held in a corresponding position in the left hand.)

The position of carry guidon (dismounted) is used in marching and when troops are at the shoulder, port, or trail arms.

Order Guidon. The ferrule of the lance rests on the ground on a line with, and touching, the toe of the right shoe, lance resting in the hollow of the right shoulder. The right hand grasps the lance, as in ***Carry guidon.***

Order guidon (dismounted) is the habitual position of the guidon when the troop is at order arms.

Being at ***Carry guidon*** (dismounted), to execute ***Order guidon:*** Let the lance slip down to position of ***Order guidon.***

Being at ***Order guidon*** (dismounted), to execute ***Carry guidon:*** Grasp the lance with the left hand opposite the right elbow, and raise the lance 6 inches, releasing lance with right hand and regrasping it at the proper position, with arm fully extended; cut the left hand smartly to the side.

Being at ***Order guidon*** (dismounted), to execute ***Parade rest:*** Execute ***Parade rest*** as without arms, at the same time carrying the lance, without moving the position of the ferrule, to the left so that it is opposite the junction of

the neck and left shoulder, hands in same relative position as in *Parade rest* without arms.

Parade rest with the guidon is executed when the troop executes *Parade rest.*

To Salute With the Guidon.

Mounted. The ferrule is raised from the socket of the stirrup, and the guidon lowered to the front until the lance is horizontal and passes under the right arm close to the arm pit.

Dismounted. Being at *Carry* or *Order guidon,* the lance is lowered to a position similar to the salute, mounted.

Salute with the guidon is executed when the troop executes *Present saber,* mounted, or *Present arms,* dismounted. When marching in review or in other ceremonies, the guidon bearer executes the *salute with the guidon* and returns to *Carry guidon* in unison with the salute of the troop commander. *Salute with the guidon* is executed only at the halt and when moving at the walk, mounted; dismounted, only when at the halt and when moving in quick time.

CLOSE-ORDER DRILL.

To Form the Troop.

The troop may be formed in any formation. The troop commander directs the first sergeant to form the troop, prescribing the place, time, formation, and whether mounted or dismounted. The first sergeant notifies the platoon sergeants and the noncommissioned officer in charge of the headquarters detachment regarding the time, place, and manner of forming their units.

At the time designated for the troop formation, the first sergeant takes post 9 yards in front of, and facing, where the base platoon will be in the formation, and commands: *FORM TROOP.* The platoons and the headquarters detachment, having been formed, are conducted, by their respective noncommissioned officer leaders to their proper places in the troop formation. The troop is habitually formed with the platoons in the order of their regular numerical designation from right to left in line formations, and from front to rear in column formations. As soon as all platoons have taken position and the platoon sergeants have faced to the front, indicating that their platoons are in position, the first sergeant commands: *REPORT.* The platoon sergeants and the noncommissioned officer commanding the troop headquarters detachment report in turn, — *Platoon formed,* or — *Platoon, — absent.* The first sergeant, after receiving the reports, turns about and saluting, reports to the troop commander (who takes post 3 yards in rear of the first sergeant in time to receive the report), *Sir, the troop is formed,* or *— absent.* The troop commander returns the salute, directs the first sergeant: *TAKE YOUR POST,* and assumes command of the troop. The first sergeant is mounted or dismounted in forming the troop, as directed by the troop commander. As the troop commander assumes command of the troop, the platoon leaders advance to their platoons, return the salutes of their respective platoon sergeants (who then take their posts), and assume command of their platoons. Platoon leaders are mounted or dismounted in accord with the troop commander.

To Dismiss the Troop.

The troop is dismissed by the first sergeant at the direction of the troop commander. The first sergeant may dismiss the troop as a whole in the same general manner as prescribed for the Rifle Platoon, or he may direct the platoon sergeants: *DISMISS YOUR PLATOONS.* The platoons are then dismissed as prescribed for the platoon. The troop headquarters detachment is dismissed in the same general manner as the platoons.

Commands.

The troop commander may employ, when applicable, the commands prescribed for the Trooper, the Squad, or the Platoon, proper substitutions in the

designations of units being made when necessary. The troop commander transmits his commands orally, by signal, by messenger, or by indication to the base. Platoon leaders, by means of oral commands or signals, cause their platoons to execute the proper platoon movements to secured the required troop formation.

The following movements, for which commands are indicated, are of frequent use:

Being in Line, to Form Column of Fours (Twos, Troopers) 1. *Column of fours (twos, troopers),* 2. *MARCH.* The base platoon moves in the indicated direction, and forms column of fours (twos, troopers) as prescribed in the Rifle Platoon. Platoon leaders of other platoons form their units in the designated formation, and lead them to their proper places in column, the left platoon in rear of the base, the right platoon next in rear, followed by the machine-rifle platoon.

Being in Line, to Change Direction. 1. *Right (left) turn,* 2. *MARCH,* 3. *Forward,* 4. *MARCH* or 3. *Troop,* 4. *HALT.* The troop commander, marching in front of the base, so regulates the movement that men on the marching flank need not increase their gait. He may indicate an increased gait, in which event only those who have not completed the movement move faster. Platoon leaders conduct their platoons so as to maintain proper alignment towards the pivot.

Being in Column, to Change Direction. 1. *Column right (left),* 2. *MARCH.* The leading platoon changes direction as prescribed in the Rifle Platoon. Rear platoons continue the march to the point at which the leading platoon changed direction, where they successively do likewise.

Column half right (left) is similarly executed by changing direction 45 degrees. To make a slight change of direction, the captain may command *INCLINE TO THE RIGHT (LEFT),* or he may simply point and move in the desired direction.

Being in Column of Fours, to Form Column of Twos or Troopers. 1. *Column of twos (troopers),* 2. *MARCH.* The leading platoon executes the movement as prescribed for the rifle squad. All squads in rear decrease the gait one degree until they can conform to the movements of the base platoon. To expedite the execution of the movement, the captain may order an increased gait, whereupon the leading element moves out at the increased gait and the others continue at the previous gait until they can assume the formation and gait ordered.

Being in Column of Fours (Twos, Troopers) to Form Line. 1. *Line,* 2. *MARCH.* The leading platoon (base) forms line at once. Platoon leaders of rear platoons conduct their units towards their proper places, increasing the gait one degree. They form line en route, and upon arrival in place, regulate upon the base.

Being in Column of Troopers or Twos, to Form Column of Fours. 1. *Column of fours,* 2. *MARCH.* The leading squad executes the movement as prescribed in the Rifle Squad. Rear squads increase the gait one degree and close up on the leading squad, conforming to the formation that it adopts.

Being in Any Column Formation, to Form in Echelon. 1. *Right (left) front into echelon,* 2. *MARCH.* Unless otherwise ordered, the leading platoon is the base; it moves in the direction indicated by the captain, followed by the rear platoons in their proper places to the right (left) and rear of the base.

Being in Line, to Form in Echelon. 1. *On — Platoon echelon,* 2. *MARCH.* Any platoon may be designated as the base. It continues the march, while the other platoons decrease the gait one degree until they have attained their proper places.

Being in Line of Platoons to Increase Intervals Between Platoons. 1. *Platoons at 75 yard interval,* 2. *MARCH.* The base platoon continues to march in the

designated direction. Leaders of other platoons conduct their units to the proper places and then regulate on the base.

Being in Line of Platoons at 125 yards Interval, to Decrease the Interval. 1. *Platoons at 75 yard interval,* 2. *MARCH.* The base platoon continues to march in the designated direction. Other platoons are conducted by their leaders to the proper places and then regulated on the base.

Being in Line, to Form in Echelon With Each Platoon in Line of Squads at 20 Yards Interval, Each Squad in Column of Troopers. 1. *Squads; column of troopers,* 2. *MARCH;* 1. *Line of Squads at 20 yards,* 2. *MARCH,* 1. *On left platoon echelon,* 2. *MARCH.* Each step is executed as previously explained.

Being in Column of Fours, to Form With Platoons Abreast, Each Platoon in Column of Squads, Each Squad in Line. 1. *Line of Platoons,* 2. *MARCH; 1. Squads, line, 2. MARCH.* The leading (base) platoon moves in the designated direction. Leaders of other platoons conduct their units to their proper places, increasing the gait one degree until abreast of the base, and conform to the formation adopted by the base.

Special Movements.

To Rally. The movement may be executed from any formation or from disorder. The command is: *RALLY.* Platoon leaders, and the noncommissioned officer in charge of the troop headquarters detachment repeat the command and rally their respective units while moving rapidly toward the troop commander. As the rallied platoons approach the troop commander, he indicates the formation, and moves in the desired direction.

The Charge. The troop may execute the charge from any formation providing a coordinated, collective charge of platoons. The troop commander indicates, by commands and example, the type of attack (pistol or saber); by his direction of movement, the direction of the attack; and by his position, the base. When the charge is executed from a line formation, the troop commander and such of the troop headquarters as accompany him, take position, as the troop advances, in the line and on the left of the base. When executed from any other formation, the troop commander leads the charge from his position in advance of the base. When deemed necessary or desirable, the troop commander may take any other position from which he can better coordinate and control the charge. Subdivisions of the troop larger than a platoon execute the charge in the same general manner as prescribed for the troop. The machine rifle platoon, when not otherwise employed, follows the rifle platoons in its normal position in the formation.

To Fight on Foot and to Form on Foot. These movements are executed by the troop in a manner similar to that prescribed for the rifle platoon with the following exceptions:

The guidon sergeant is habitually in charge of the led horses of the troop.

In dismounting to *Fight on foot* or *To form,* the dismounted platoons are conducted, by their leaders, toward the troop commander who directs the formation to be taken.

When the led horses of the troop are to be mobile, the mounts of the troop commander, junior captain and troop headquarters personnel accompanying the troop commander are led by such orderlies, buglers, or messengers as the troop commander may direct.

When the led horses of the troop are to be immobile, the mounts of the troop commander, junior captain, and troop headquarters personnel accompanying the troop commander are ordinarily circled as a unit or coupled in pairs, as directed by the troop commander.

The troop headquarters detachment (less personnel accompanying the troop

commander) remains with the led horses of the troop unless directed otherwise by the troop commander.

The troop circles horses by squad or by platoon.

Dismounted Close-Order Drill.

As with the squad and platoon, the principles governing *dismounted* formations and movements are the same as prescribed for *mounted* formations and movements of the respective units, except as to *pace*. No increase is made in executing a movement in dismounted drill unless specifically ordered.

Being in Line, Moving in Quick Time or Halted, to Form Column of Fours. The troop commander commands: 1. ***Column of fours,*** 2. ***MARCH.*** At the first command, the leader of the base platoon commands, ***Column of fours;*** and all other platoon leaders command, ***Platoon*** (or ***Stand fast).*** At the second command, all platoons other than the base are halted (or stand fast) by their leaders, until time for each to execute column of fours and follow the base in proper position. At the first command, the leader of the base squad of the base platoon cautions, ***Column of fours,*** and the leaders of the other squads of this platoon cautions, ***Mark time.*** At the second command, the leading four of the base squad continues (or moves) forward in quick time, and the second four of this squad marks time until time to follow the leading four, when it resumes the quick time. The other squads of the base platoon form column of fours (as described for the base squad), and platoons other than the base platoon execute column of fours (as described for the base platoon) in time to take their proper places in column.

CHAPTER XII.

THE SQUADRON. THE REGIMENT.

THE SQUADRON.

Organization. The squadron is a tactical unit, and an element of the regiment. When detached from the regiment, the squadron assumes certain administrative functions. It is organized into a squadron headquarters and two or more rifle troops. The squadron is normally commanded by a major, assisted by certain commissioned and enlisted personnel as provided in tables of organization.

Squadron Formations.

Squadron formations are the arrangements of the troops of the squadron, with respect to each other, in line, column, and echelon. The troops, platoons, and squads, may be in any respective troop, platoon, and squad formation desired. Of the numerous formations available to the squadron, those listed below will usually be of most use.

Squadron in *line, column, or echelon of troops.*

Troops in *line, column,* or *echelon of platoons.*

Platoons in *line, column* or *echelon of squads.*

Squads in *line, line of troopers at — yards, column of fours, column of twos,* or *flock.*

Intervals and Distances. In any close-order line formation, the interval between troops is such that if ***Line*** be formed, intervals of 10 yards will remain between troops.

The distance between troops in ***Column of fours, twos,*** or ***troopers*** is 6 yards. In any *other* close order column formation, the distance between troops is such that if *Line* be formed by each troop, the new distance between troops will be equal to troop front plus 7 yards.

Posts of Officers, and Others. *The squadron commander.* The post of the *major* in all formations is 12 yards in front of the captain of the base troop. When the major is accompanied by members of the squadron headquarters detachment, this distance is measured from the captain of the leading troop to the rear element of the detachment. Whenever necessary or desirable, he may leave his post, indicating to the base his wishes regarding direction, gait, etc.

The *squadron adjutant* is posted on the left, and abreast of the major.

Squadron staff officers (other than the adjutant), who may be present are posted in *Line*, in order of rank from right to left, the senior 3 yards in rear of the major.

Noncommissioned staff officers and orderlies who may be present are posted in ***Line*** in order of rank from right to left, 3 yards in rear of the line of staff officers. When the squadron is in ***Column of fours, twos,*** or ***troopers,*** this group conforms to the formation.

Attached personnel. When a squadron is operating independently, the regiment may attach such personnel of the following regimental headquarters sections as the situation demands:

Administrative and supply section.

Intelligence section.

Communication section.

Pioneer and demolition section.

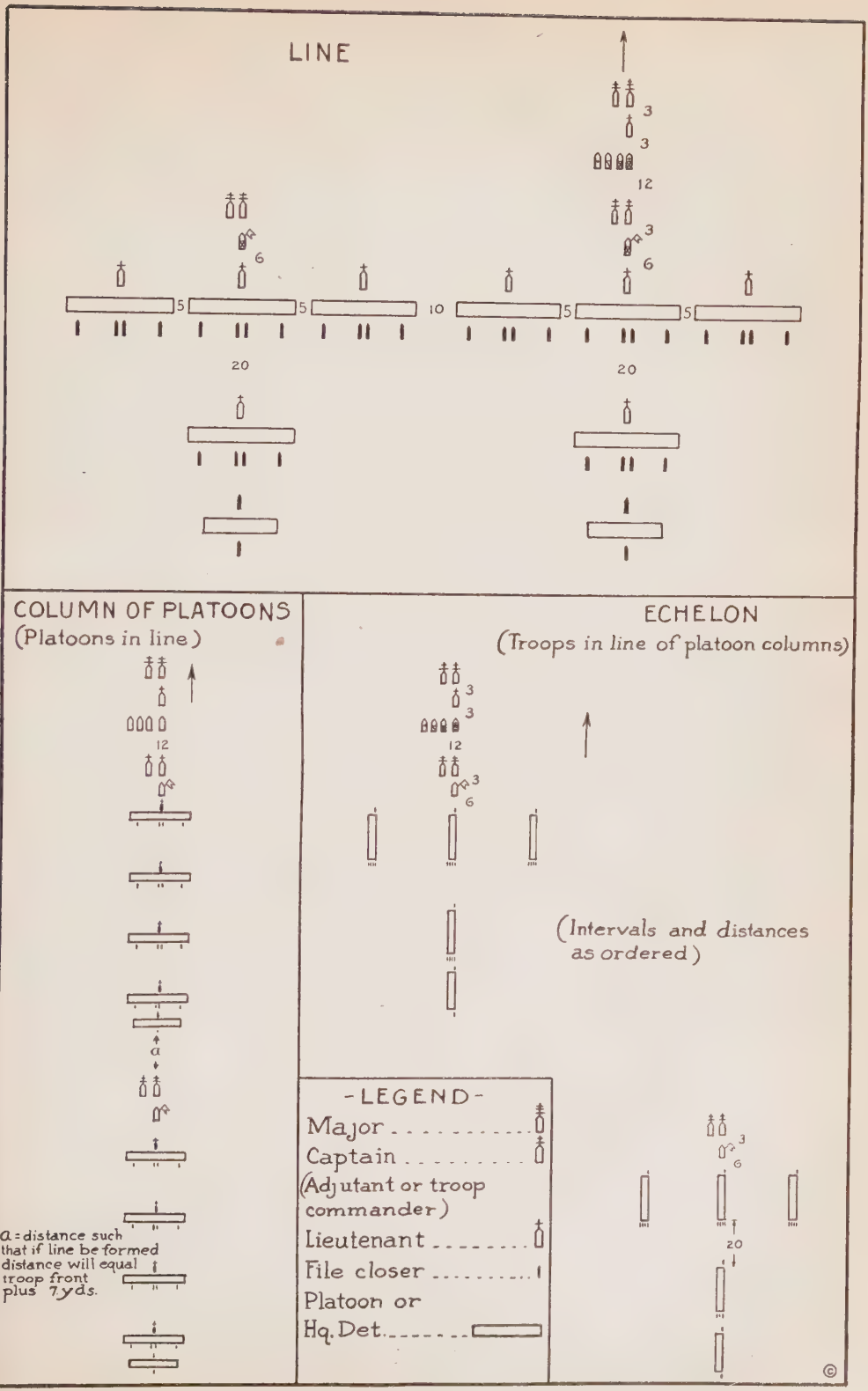


PLATE 75. The Squadron in Line, Column of Platoons and Echelon.

These sections do not necessarily appear at drills of the squadron, though they are usually present at inspections and ceremonies. When present, they are posted from right to left, or front to rear, in the order named, in charge of the senior noncommissioned officer, as follows: 10 yards in rear of the machine-rifle platoon of the base troop when the squadron is in a line formation, or 10 yards in rear of the machine-rifle platoon of the rearmost troop when the squadron is in a column formation. Their formation (i. e., in *Line, Column of fours, twos,* or *troopers)* is determined by that of the squadron, or as directed by the major. When desirable, the major posts the different sections or special individuals as he wishes.

To Form the Squadron. The squadron may be formed in any formation. The adjutant informs the captains as to the place and hour of assembly and what the formation is to be. The troops, having been formed, are marched to the vicinity of the place of assembly. The adjutant takes post so as to be facing the base troop of the squadron when formed. Adjutant's call is sounded, or the adjutant commands: ***FORM SQUADRON.*** The troops take postion habitually in the order of their letter designation from right to left in line formations, and from front to rear in column formations. The captain of the base troop places his troop, in the proper formation, so that he is facing the adjutant at 12 yards distance. The other troops take their proper places with reference to the base. Any troop may be selected as the base, and if a troop other than that which would normally be the base is thus selected, the other troops take positions as directed.

The major takes post 6 yards in rear of the adjutant, facing the squadron. When all troops are in place, the adjutant faces about, and saluting, reports, ***Sir, the squadron is formed.*** The major returns the salute of the adjutant, directs, ***TAKE YOUR POST, SIR,*** and conducts his squadron as desired.

To Dismiss the Squadron. The major commands: ***DISMISS YOUR TROOPS.*** Staff officers and noncommissioned staff officers fall out; and the headquarters detachment, if present, is marched to the proper place and dismissed. Captains conduct their troops to the proper places and dismiss them in the prescribed manner.

Commands. The major may employ, when applicable, the commands prescribed for the Soldier, the Squad, the Platoon, and the Troop, proper substitutions in the designations of the units being made when necessary. The major transmits his commands or orders orally, in writing, by bugle or signals, or communicates them to the proper subordinate by means of staff officers or messengers.

Each captain gives the appropriate command or orders to cause his troops to execute the necessary movements. These movements are executed at the command of the respective troop commanders.

THE REGIMENT.

Organization. The cavalry regiment is a tactical and an administrative unit, and an element of the brigade.

It is organized into a regimental headquarters and band, a headquarters troop, a machine gun troop, and two or more rifle squadrons.

The regiment is normally commanded by a colonel, who is assisted by certain commissioned and enlisted personnel, as provided in tables of organization.

Regimental Formations. Regimental formations are the arrangement of the squadrons of the regiment with respect to each other in line, column, and echelon. The squadrons, troops, platoons, and squads may be in any respective squadron, troop, platoon or squad formation desired. Of the many formations availible to the regiment, those indicated below will usually be of the most utility:

The regiment in *line, column,* or *echelon of squadrons.*

The squadrons in *line, column,* or *echelon of troops.*

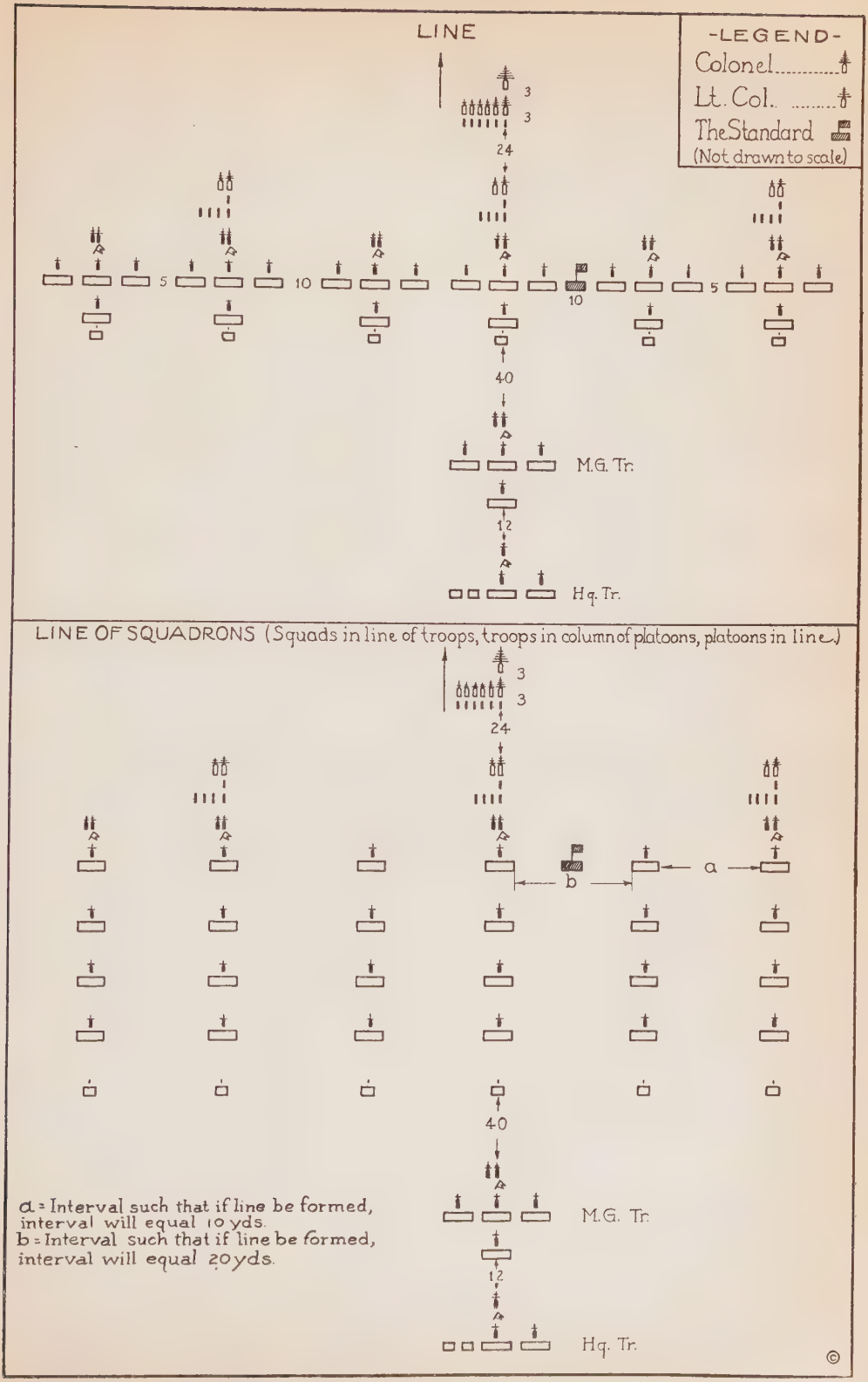


PLATE 76. The Regiment in Line and Line of Squadrons.

The troops in *line, column,* or *echelon of platoons.*

The platoons in *line, column,* or *echelon of squads.*

The squads in *line, line of troopers at — yards, column of fours, column of twos,* or *flock.*

Intervals and Distances. In any close-order line formation, the interval between squadrons, is such that if ***Line*** be formed by each squadron, an interval of 20 yards will remain between squadrons.

In ***Column of fours, twos,*** or ***troopers,*** the distance between squadrons is 12 yards. In any *other* close order column formation, the distance is such that if ***Line*** be formed by each squadron, the new distance between squadrons will be equal to squadron front plus 17 yards.

Posts of Officers, and Others. *The regimental commander.* The post of the colonel, in all formations, is 24 yards in front of the leader of the base squadron. When the colonel is accompanied by members of his staff or personnel of headquarters troop, this distance is measured from the rear element of the group accompanying the colonel to the leader of the base squadron. In column formation when the band is present the colonel takes post 12 yards in front of the band. Whenever necessary or desirable, the colonel may leave his post, indicating, if necessary, to the lieutenant colonel, or major of the base squadron, his wishes regarding direction, gait, etc.

The regimental executive. The lieutenant colonel is the assistant to, and executive for, the colonel. His post is 3 yards in rear of the colonel.

Staff officers. At all regimental formations (except as especially provided for ceremonies), staff officers, when present, take post in order of rank from right to left, abreast, and on the left, on the regimental executive. When the regiment is in ***Column of fours, twos,*** or ***troopers,*** the staff group takes a similar formation, or marches as directed by the colonel.

Noncommissioned staff officers and messengers. Noncommissioned staff officers and messengers, when present, take post in ***Line*** in order of rank from right to left, the senior 3 yards in rear of the right staff officer. When the regiment is in ***Column of fours, twos,*** or ***troopers,*** this group conforms to the formation.

Band. In line formations, the left of the front rank of the band is 12 yards to the right, and abreast, of the leading rank of the right squadron. In column formations, the band is 12 yards in front of the leading squadron commander.

Guard to the standard. In line formations, the guard to the standard takes post midway between the first and second squadron, on line with the leading elements. In column formation, it maintains a corresponding position in the center of the regiment. In echelon formations, on marches, and when directed by the regimental commander, the guard to the standard is posted 3 yards in rear of the group accompanying the regimental commander.

Headquarters Troop. The headquarters troop, when present as an organization, is posted 12 yards in rear of the machine gun troop in all formations. This distance is measured from the rearmost file closers of the machine gun troop to the leader of the headquarters troop. The formation of the headquarters troop corresponds, as closely as its organization and drill permit, to the formation of the rifle troops.

Machine Gun Troop. In all regimental formations, the machine gun troop conforms in its formations, as closely as its organization and drill permit, to the formation of the rifle troops.

In all regimental line formations, the machine gun troop takes position in rear of the center of the base squadron, at a distance of 40 yards.

In all regimental column formations, the machine gun troop takes post in rear of the center of the rearmost squadron, at distances as follows: in *column of fours, twos,* or *troopers,* 12 yards; in all other column formations, 40 yards.

In all regimental echelon formations, the machine gun troop is in rear of the center of the base squadron, and less advanced than the rearmost rifle troop of the regiment by a distance approximating its own width of front.

To Form the Regiment. The regiment may be formed in any prescribed formation.

The regimental executive informs the squadron commanders and regimental organization commanders of the time, place, and formation of the regiment.

The squadron and regimental organizations having been formed and marched to the vicinity designated for the regimental formation, the regimental executive, or other designated staff officer, takes past facing, and 24 yards in front of, the point where the leader of the base squadron will be. ***Regimental call*** followed by ***Assembly*** is sounded, or the executive officer signals ***ASSEMBLE.*** Squadrons and regimental organizations take their proper positions in the formation. The regimental commander takes post 6 yards in rear of the executive officer, facing the regiment. When the squadron and regimental organizations have taken their positions, the executive officer turns about, salutes, and reports to the regimental commander: *Sir, the regiment is formed.* The colonel returns the salute; and the regimental executive takes his prescribed post on the left of the regimental commander.

To Dismiss the Regiment. The colonel commands: ***DISMISS YOUR SQUADRONS.*** Officers and noncommissioned officers of the regimental staff accompanying the colonel fall out. Organized detachments of the headquarters troop and regimental transportation groups are conducted, by their leaders, to the proper places and dismissed; likewise, squadron and regimental organization commanders, and the commanders of any attached units conduct their commands to the proper places and dismiss them in the prescribed manner.

Commands. The colonel may employ, when applicable, the commands prescribed for the Trooper, the Rifle Squad, the Rifle Platoon, the Rifle Troop, and the Squadron, proper substitutions in the designations of the units being made when necessary. The colonel transmits his commands orally, in writing, by bugle, by signal, and by means of staff officers or messengers. Preparatory to giving a command orally or by signal, the colonel signals: ***ATTENTION,*** or causes it to be sounded.

Squadron and regimental organization commanders give the appropriate commands or orders to cause their units to execute the movements necessary to accomplish the regimental formation ordered. Such movements are executed at the commands of the respective unit leaders.

CHAPTER XIII.

CEREMONIES.

General Provisions.

Prescribed ceremonies are reviews, parades and escorts. Cavalry ceremonies will be mounted whenever possible and appropriate. They should serve as an indication of the condition of a command as regards appearance, discipline, equipment, etc.

Arrangement of Units. In all ceremonies, unless otherwise directed herein, units are arranged in formation in their normal alphabetical or numerical order, from right to left in line, and from front to read in column.

Position of Guidons at Ceremonies. Troop guidons are posted on the right of the rank in *Line;* on the right of the leading rank of the right column in line of column formation; and on the right of the leading rank in column formation.

Salutes. The National Standard renders no salute. In all ceremonies in which the troops pass in review, salutes are rendered the reviewing officer during the march past as prescribed for reviews.

Bugler. When the band is present, all buglers are attached to their band for ceremonies, except as noted below:

At reviews one bugler accompanies the commander of troops.

When the band is dismounted at Escort to the Standard and Guard Mounting, mounted, the buglers form mounted as prescribed for these ceremonies .

When the band is not present for ceremonies, the buglers may be massed and act as prescribed for the band, or they may remain with their organizations.

Dismounted Bands at Mounted Ceremonies. Unless otherwise stated, it is assumed that the band is mounted at mounted ceremonies. In case the band is dismounted at a mounted ceremony, it acts as prescribed for a mounted band with the exceptions noted below (or mentioned under the particular ceremony).

In reviews and parades, at the command: ***Pass in review,*** dismounted bands move directly to their posts opposite the reviewing officer. At the command: ***MARCH*** (which is given after the bands have cleared the troops), that band which was posted nearest the right of the line starts to play. Thereafter, the bands alternate in playing, in the original order of their units from right to left on the line. The dismounted bands remain in position in front of the reviewing stand until the review or parade has terminated.

In escorts of honor, dismounted bands do not accompany the mounted escort, but are posted to play at suitable times and locations.

At mounted parade a dismounted band, at the squadron or regimental commander's command: ***SOUND OFF,*** sounds off in place, and does not parade in front of the troops.

REVIEWS.

Purpose. A review is a ceremony tendered to a civil or military official or a foreign dignitary. Reviews may also be held for training and disciplinary purposes.

The Reviewing Ground. The reviewing ground is usually rectangular in shape, and of a size suitable to the command. The troops are formed on the middle portion of one of their long sides, facing the field. The reviewing officers' post is usually located at the center of the opposite side, facing the troops. The line upon which the command is to form, and the track to be used in the march in review, may be marked by flags, stakes, etc., the track being so located that

when passing in review, the flank of the column toward the reviewing officer will be 20 yards from his post.

Size of Command. The squadron is the smallest unit which is reviewed.

Uniformity in Size of Platoons. To secure uniformity in appearance, the size of platoons within each troop may be equalized.

Staff of the Commander of Troops. When the commanding officer of the command being reviewed is the reviewing officer, or when for any other reason he does not actually command his unit during a review, the staff of the command accompanies the commander of troops.

Position of Staffs. The commissioned staffs of the reviewing officer and of the commander of troops take post in *Line,* 3 yards in rear of their respective commanders, in order of rank from right to left, with the exception that the chief of staff or executive is always on the right of the line and covers the commander. The enlisted staffs take posts in a similar formation, 3 yards in rear of the respective commissioned staffs. The flag of a general officer is posted on the right of his enlisted staff.

Prior to riding around the command, the reviewing officer may direct his staff to remain at the reviewing stand, or that only his personal staff (aides) shall accompany him. In such cases, the commanding officer of troops (without any of his staff), accompanies the reviewing officer. The flag of a reviewing officer remains at the reviewing stand during the ride around the troops.

Salutes and Special Honors to the Reviewing Officer. *Salutes.* In the first march past the reviewing officer, all officers, non-commissioned platoon leaders, organization standards and flags, and troop guidons salute the reviewing officer. The salute is rendered when 6 yards from the reviewing officer and is held until 6 yards past him—i.e., the salute is held during a march of 12 yards. The commissioned staffs of all commands salute and terminate the salute with their respective commanders. All who salute turn head and eyes smartly toward the reviewing officer, continue to look toward him while the salute is held, and turn the head and eyes smartly to the front when the salute is terminated.

Special honors. When the rank of the reviewing officer entitles him to special honors, they are rendered twice by the band and field music, or by the field music alone, depending upon the rank of the reviewing officer; *first,* at the time when the command is presented to the reviewing officer by the commander of troops; *second,* during the march past, as organization standards are dipped to the reviewing officer, as explained below:

In the first case the drummers sound the ruffles and the buglers sound the flourishes. The buglers then sound the *General's March* or the band plays the *National Anthem,* depending upon the rank of the reviewing officer. If more than one band be present, one of the bands is designated to play the *National Anthem.* In case the reviewing officer be entitled to the National Anthem and no band be present, the buglers sound *To the Standard* in lieu of the *National Anthem.*

In the second case, as organization standards are dipped, the band continues to play while the drummers sound the ruffles, and the buglers sound the flourishes followed by the *General's March.* The *National Anthem* is not played during the march past.

Salutes by Reviewing Officer and Staff. When riding around the troops, the reviewing officer and those accompanying him salute the national standards when passing in front of them. The standards do not salute.

The reviewing officer returns the salute of the commanding officer of troops only. The reviewing officer and others at the reviewing stand salute the national standards as they pass.

Massed Buglers. When for any reason bands are not present, massed buglers may act as directed for the band, or bands.

When the rank of the reviewing officer entitles him to special honors, the buglers and snare drummers from each band (or organization) form in ***Column of fours,*** 10 yards to the right of the commander of troops, and facing the reviewing stand. The drummers and buglers accompany their bands (or organizations) until their unit is posted on the line designated for the review, at which time they fall out, and take post as indicated above. The senior bugler present supervises the formation from a position 3 yards in front of the group of massed buglers and drummers.

After the special honors to which the reviewing officer is entitled have been rendered, the senior bugler commands: 1. ***Posts,*** 2. ***Trot,*** 3. ***MARCH.*** At the command ***March,*** the buglers and drummers rejoin their respective bands or organizations, individually.

Termination of the Review. The review is terminated when the last unit has completed its first change of direction after having passed the reviewing stand for the last time.

Positions and Formations of Machine Gun and Headquarters Troops. Machine gun and headquarters troops take post, and assume formations, as provided for these units in the drill of The Regiment and The Brigade.

Transportation Units. Wheeled transport is ordinarily grouped in rear, or on the left of the command, as directed by the commander ordering the review. Motor and animal transport are formed into separate groups. While passing in review, the transportation conforms in general to the formation of the troops. Animal transport normally passes in review at the walk and trot only; motor transport during the trot only. After passing in review at these gaits, the transportation units are dismissed, unless otherwise directed.

Distinguished Personages Accompanying Reviewing Officer. Officers of the same or higher grade and distinguished personages invited to accompany the reviewing officer place themselves on his left; their staffs on the left of the staffs of the reviewing officer (in corresponding order, from right to left). All others who accompany the reviewing officer place themselves on the left of the commissioned staffs, enlisted attendants in rear, on line with enlisted staffs. A staff officer is designated to escort distinguished personages during the review, and to indicate to them their proper positions, etc.

Review by Junior Officer. When a command is reviewed by an officer junior in rank to the commanding officer, the commanding officer receives the review (as reviewing officer), and is accompanied by the junior officer, who takes post on his left.

Reviewing Officer not Mounted. If the person reviewing the command is not mounted, the commander of troops and his staff, on turning out of the column after passing the reviewing officer, return saber and dismount, preparatory to taking posts.

Post of Band in Special Cases. When desirable or necessary to meet local conditions, bands may be posted, during the march in review, on line with the reviewing officer, facing the field, the nearest band 15 yards to the right of the reviewing stand.

Squadron Review.

The squadron is generally formed for review in ***Line,*** and passes in review in column of platoons in ***Line.*** (See Plate 75.) The band, if present takes post just prior to the formation of the squadron, 12 yards to the right of the point where the right of the squadron will rest when formed, with its front rank on the line on which the troops are to form. The commander of troops takes post midway between the reviewing stand and the line upon which the troops are to form, facing the latter. The adjutant takes post midway between the commander of troops and the line upon which the squadron is to form,

opposite the point where the center of the squadron will rest, draws saber, and causes ***Adjutant's Call*** to be sounded. The band then commences to play, and the troops form on the designated line, successively from right to left. When the last unit has arrived on the line, the band ceases to play. The formation having been completed, the adjutant faces the commander of troops, salutes, and reports: "Sir, the squadron is formed." The commander of troops returns the salute of the adjutant, directs: "Take your post, Sir;" and then draws saber. The adjutant, moving at a gallop, takes his prescribed post on the line of staff officers accompanying the commander of troops.

Presenting the Squadron to the Reviewing Officer. The commander of troops having assumed command of the squadron, he and his staff change front so as to face the reviewing officer.

The reviewing officer, when ready to proceed with the review, advances several yards toward the commander of troops and halts. The commander of troops then faces the squadron (his staff standing fast), and commands: 1. ***Draw,*** 2. ***SABER,*** followed by 1. ***Present,*** 2. ***SABER;*** he then faces the reviewing officer and salutes. At this time the special honors, if any, to which the reviewing officer is entitled are rendered (see A.R. 600-30). When the salute of the commander of troops has been acknowledged, he faces the squadron (his staff standing fast), and commands: 1. ***Carry,*** 2. ***SABER,*** and again faces the reviewing officer.

The Ride Around the Troops. The reviewing officer, if he does not desire to ride around the line of troops, remains at his post, and the march in review follows; otherwise, he approaches the commander of troops, who joins the reviewing officer, riding on the latter's right. The commander of troops is accompanied by his staff, personal staff, or is unaccompanied, depending upon what staff accompanies the reviewing officer. They proceed to the right of the band, ride around the squadron, and make such general inspection of the troops as the reviewing officer may desire. The band plays as the reviewing officer approaches and during the ride around the squadron. Upon arriving again at the right of the line, the commander of troops salutes the reviewing officer and halts. The reviewing officer returns the salute, and, accompanied by his staff, resumes his post at the reviewing stand. When the reviewing officer has passed the commander of troops, the latter resumes his post in front of, and facing, the center of the squadron.

The March in Review. The commander of troops then commands: 1. ***Pass in review,*** 2. ***Column of platoons,*** 3. ***MARCH.*** (The last command is not given until the band has taken its prescribed post for the march in review.)

At the *second* command, the commander of the right troop commands: 1. ***Column of platoons on first platoon,*** 2. ***First platoon right turn;*** and, at the *third* command, he commands: 3. ***MARCH,*** takes his post in front of the leader of the first platoon, and follows the band at 6 yards distance. The other troops of the squadron, in a similar manner, join the column at prescribed distances.

At the command ***Pass in review,*** the band moves to the front and changes direction to the right, so as to be in front of the center of the first platoon when the latter shall have executed a right turn. When this change of direction has been completed the band halts. At the command ***March,*** by the commander of troops, the band plays in appropriate time and passes in review. Immediately after passing the reviewing officer, the band turns left out of column, and takes post in front of, and facing, the reviewing officer, at such distance as to permit the troops to pass between without interference. The band continues to play in appropriate time until the review is terminated, when it is marched from the field and dismissed by its leader.

After giving his command for the squadron to pass in review, the commander of troops, followed by his staff, takes post 24 yards in front of the band, and leads the column. After passing the reviewing officer and having

completed his salute, the commander of troops and his staff turn out of the column and join the reviewing officer, taking posts on the right of the reviewing officer and his staff respectively. Sabers are not returned until the review has terminated.

Unless directed otherwise by the officer ordering the review, the troops pass in review at the walk, at the trot, and at the gallop. After passing the reviewing officer at the walk, the captain of the leading troop so leads the column as to return to the approximate position from which the troops initiated their march in review. Upon arrival of the troops at this position the commander of troops causes his bugler to sound: 1. *Trot,* 2. ***MARCH.*** In a similar manner the command assumes the gallop. After passing the reviewing officer for the last time the troops continue, unless otherwise directed, beyond the first change of direction, where they clear the column and proceed toward their stables or picket lines, and are dismissed by their respective troop commanders. Each troop commander so leads his troop as to prevent it interfering with the march in review of troops in rear.

When the review has terminated, the commander of troops, without changing his post, salutes the reviewing officer. When the salute has been acknowledged the commander of troops and his staff return saber.

Regimental Review.

Regimental review is executed in the same general manner as prescribed for squadron review. Such differences as exist are enumerated below:

Formation of the Regiment. The regiment is generally formed in ***Line;*** or, in ***Line of squadrons,*** (See Plate 76), squadrons in ***Line of troops,*** troops in ***Column of platoons,*** platoons in ***Line.*** It generally passes in review in ***Column of platoons,*** platoons in *Line.* When formed in ***Line,*** it may pass in review in ***Column of troops,*** troops in ***Line.***

The regiment is formed on a designated line by the squadrons taking post successively, in normal order from right to left. The machine gun troop is conducted to its post as soon as the squadron upon which it regulates is in position. The headquarters troop, if present, takes its post as soon as the machine gun troop is in position. Transportation units take post, as ordered, as soon as practicable after the squadrons have formed on the line.

The March in Review. Depending upon the formation desired, the commander of troops commands: 1. ***Pass in review,*** 2. ***Column of troops,*** 3. ***MARCH;*** or 1. ***Pass in review,*** 2. ***Column of platoons,*** 3. ***MARCH.*** The leader of the right squadron gives the appropriate commands to cause the squadron to assume the desired formation for the march in review; the column is habitually formed on the right troop, or the right (or leading) platoon of the right troop. The column immediately changes direction to the right as in squadron review, and follows the band at 12 yards distance. In a similar manner the other squadrons and separate units join the column.

After passing the reviewing officer the last time, the squadron and separate units continue, unless otherwise directed, beyond the first change of direction point, where they clear the column and proceed to their stables or picket lines, and are dismissed by their respective commanders. These leaders so conduct their units as not to interfere with the march in review of troops in rear.

PRESENTATION OF DECORATIONS.

A review is the usual ceremony at which decorations are presented.

Procedure.

After the reviewing officer has ridden around the line and resumed his post, the commander of troops from his post in front of and facing the troops, commands: 1. ***Persons (or standards; or persons and standards) to be decorated and all standards,*** 2. ***Front and Center,*** 3. ***Trot,*** 4. ***MARCH.*** The commander

of troops, followed by an orderly only, then advances toward the troops, to a point 6 yards in front of the center of the line on which the leading element to be decorated is to form, and halts. The staff of the commander of troops does not accompany him, but moves to the right from its position, and takes post, facing to the front, so as to be clear of the group of persons and standards to be decorated, when that group marches forward.

At the command ***March,*** the persons to be decorated and all standards (each accompanied by its national standard and guard) move by the most direct route, and forms as follows:

Persons to be decorated: in single rank, opposite the center of the command, and 9 yards in advance of the line of troop commanders, in groups from right to left according to rank of decorations, and from right to left within each group according to rank of individuals.

Standards to be decorated (each with its national standard and guard) take position 6 yards in front of the center of the line of persons to be decorated, in order of rank from right to left of the respective decorations to be awarded. If there be no persons to be decorated, standards form on the line designated for individuals—viz., 9 yards in advance of the line of troop commanders.

All other standards form in line, 3 yards in rear of the line of persons to be decorated, in the order of their respective units on the line.

When the above formation is completed, the commander of troops faces to the front and commands: 1. ***Detachment,*** 2. ***Forward,*** 3. ***MARCH.*** At the command ***March,*** the detachment advances, guiding center in each rank. The band (or massed buglers; or a previously designated band in case more than one be present) plays appropriate music during the march forward. Upon reaching a point 12 yards from the reviewing officer, the commander of troops commands: 1. ***Detachment,*** 2. ***HALT.*** He then salutes the reviewing officer, and reports: "Sir, the persons (or standards, or persons and standards) to be decorated are present." After the reviewing officer has returned the salute, the commanding officer of troops faces about, and commands: 1. ***Present,*** 2. ***SABER.*** When all units have executed present saber he faces about and salutes. The band plays the *National Anthem* (or massed buglers play *To the Standard*). Upon completion of the music, the commander of troops executes carry saber, faces about, and commands: 1. ***Carry,*** 2. ***SABER,*** followed by 1. ***Return,*** 2. ***SABER.*** Those to be decorated salute (or present saber), beginning and terminating the salute at the commands ***Present Saber*** and ***Carry Saber,*** respectively. The commander of troops then commands: 1. ***Prepare to dismount,*** 2. ***DISMOUNT,*** which command is executed by the following persons *only*: The reviewing officer, persons and standards being decorated, the commander of troops, designated staff officers, and necessary orderlies.

The reviewing officer and designated staff officers advance to a convenient point in front of the persons and standards to be decorated. The commander of troops withdraws to one side, or acts as directed by the reviewing officer. A designated staff officer then reads the order announcing the awards. After the reading of the order, the reviewing officer, accompanied, if desired, by staff officers previously designated, advances to the standards to be decorated, then to the line of persons to be decorated, and fastens the appropriate streamer to the staff of the standard or standards, and pins the decoration awarded on the left breast of each person to be decorated. He then directs the commander of troops to march the command in review.

The reviewing officer, the commmander of troops, staff officers and orderlies mount, and resume their posts. The commander of troops commands: 1. ***Persons (or persons and standards) decorated,*** 2. ***Prepare to mount,*** 3. ***MOUNT.*** He then directs the persons decorated to form in line on the left of the reviewing officer, or as otherwise directed, and commands: 1. ***Posts,*** 2. ***MARCH.*** At the command ***MARCH,*** individuals move promptly to their

designated positions, and all standards return to their posts (at a gallop by the most direct route). The commander of troops returns to his post, and the review continues.

PARADES.

General. Parades are ceremonies held for the purpose of publishing important orders, for improving the smartness and appearance of a command, or for improving the smoothness and precision with which a command executes its evolutions. The squadron and regiment are the only units for which parades are prescribed. Vehicles, including those of the antiaircraft section of the machine gun troop, do *not* attend *parades*. Pack animals and equipment do *not* attend *dismounted* parade. Personnel transported in vehicles attend *dismounted* parade only. In the field, all arms are carried by individuals at *mounted* parade. The saber is not carried by individuals at *dismounted* parade in the field.

Squadron Parade, Mounted.

Prior to the ceremony, each troop is formed on its respective parade ground, and then marched to the vicinity of the place where the squadron parade is to be held.

The squadron forms for parade in ***Line.*** The band (or if no band be present, the massed buglers) take post just prior to the formation of the squadron, facing to the front, 12 yards to the right of the point where the right of the right troop will rest when the squadron is formed. The adjutant takes post facing the line upon which the squadron is to form, at a distance from this line, approximating one-fourth the front of the squadron and opposite the point where the center of the squadron will rest. He then draws saber, and causes *adjutant's call* to be sounded. The band, (or assembled buglers, if the band be not present) then commences to play, and the troops form successively on the designated line, in alphabetical order from right to left, each troop in ***Line.*** Machine-rifle platoons form in ***Line of fours,*** fours in ***Column of twos,*** 20 yards in rear of the base platoons of their respective troops. Troop headquarters detachments are each formed into a ***Line of three columns of twos,*** at 6 yards interval. The right column consists of individually mounted troopers, the other two columns of pack animals and horseholders, 3 pack animals to a column. (In the peace organization there will be only one column of pack animals.) The troop headquarters detachment is posted in rear of the machine rifle platoon, the heads of its columns 12 yards in rear of the columns of the machine rifle platoon. The junior captain takes post 3 yards to the left of, and on a line with, the troop commander. No other personnel of the troop headquarters detachment accompanies the troop commander. The first sergeant takes post 3 yards in rear of the troop headquarters detachment.

When the last troop has arrived on the line the band ceases to play and the squadron commander, accompanied by his staff, takes post in front of, and facing, the center of the squadron, at a distance from the squadron approximating one-half its front. The commissioned staff takes post in ***Line,*** 3 yards in rear of the squadron commander, in order of rank from right to left, the senior covering the squadron commander. The enlisted staff takes post in similar formation, 3 yards in rear of the commissioned staff.

When the formation is complete the adjutant turns about, salutes, and reports: "Sir, the squadron is formed." The squadron commander returns the salute of the adjutant, and directs: "Take your post, sir." He then draws saber, and commands: 1. ***Draw,*** 2. ***SABER.*** The staff of the commander draw saber with him. The adjutant, moving at a gallop, takes his prescribed post on the line of staff officers accompanying the squadron commander.

At the command: ***Draw saber*** all troop commanders draw saber and face their troops. Beginning with the right troop, the troops draw saber successively

from right to left, each troop commander giving the proper commands when the troop on his right has *completed* drawing saber. Troop commanders face to the front when their respective troops have drawn saber.

When all troops have drawn saber the squadron commander commands: ***SOUND OFF.*** The band, playing a march, passes in front of the line of troop commanders, executes a countermarch, and returns to the right of the line, executes ***Column right*** followed by another countermarch, halts in its original position (facing the front), and ceases playing. If there be no band present, the assembled buglers *Sound off in place.*

If the parade be held at retreat, the buglers now sound *Retreat.* At the conclusion of *Retreat* the squadron commander commands: 1. ***Present,*** 2. ***SABER.*** The movement is executed in the same manner as prescribed for drawing saber above, except that each troop commander executes ***Present saber*** after having faced to the front. When the last troop has completed the movement, the squadron commander and has staff execute ***Present saber.*** The band then plays *The National Anthem,* or if no band be present, the massed buglers sound *To the Standard.* When the music has ceased, the squadron commander and his staff return to ***Carry Saber,*** and the squadron commander commands: 1. ***Carry,*** 2. ***SABER.*** At the second command all troop commanders return to the ***Carry saber,*** face their troops. Beginning with the right troop, ***Carry saber*** is executed successively by troop, from right to left, each troop commander facing to the front after having caused his troop to come to ***Carry saber.***

The squadron commander now directs the adjutant: "Receive the reports, sir." The adjutant advances at the gallop toward the center of the line, halts midway between the line of troops, and the squadron commander, and commands: ***REPORT.*** The troop commanders, commencing on the right successively salute and report: ***A*** (or ***other) Troop, present or accounted for,*** or ***A*** (or ***other) Troop, — officers or men absent.*** The adjutant returns the salute of each troop commander; and, when all have reported, turns about, salutes the squadron commander, and reports: ***Sir, all present or accounted for,*** or ***Sir, — officers or men absent.*** The squadron commander returns the salute, and directs: ***PUBLISH THE ORDERS, SIR.*** The adjutant turns about, cautions: ***ATTENTION TO ORDERS,*** and publishes the orders.

The adjutant then commands: 1. ***Officers,*** 2. ***CENTER,*** 3. ***MARCH.*** At the second command all officers commanding platoons move forward and take posts on line with the troop commanders. The officer commanding the base platoon takes post 3 yards to the left of the junior captain, or 3 yards to the left of the troop commander if the junior captain be not present. Officers commanding machine rifle platoons take post on line with the troop commanders and directly in front of the left flank of the base rifle platoon of their respective troops. The adjutant delays the command ***March*** until all officers have formed on the line of troop commanders. At the command ***March,*** all officers turn individually to the right or left, close toward the center of the squadron at the *walk,* and form ***Line,*** facing to the front. The adjutant, moving at a trot resumes his post on the line of staff officers accompanying the squadron commander. When all officers have closed on the center and the ***Line*** has been formed, the senior commands: 1. ***Officers,*** 2. ***Forward,*** 3. ***MARCH.*** At the third command, the band (or massed buglers) starts to play, and the line of officers advances toward the squadron commander at the *walk,* guiding on the center officer, who marches directly toward the squadron commander. When 6 yards from the squadron commander, the senior officer commands: 1. ***Officers,*** 2. ***HALT.*** At the command of execution, the music ceases, the officers halt, and all salute (returning to the ***Carry saber*** with the squadron commander). The squadron commander returns the salute of the officers, gives any instructions which he may desire, and commands: 1. ***Officers,*** 2. ***Posts,*** 3. ***Gallop,*** 4. ***MARCH.*** At the

fourth command the officers turn successively to the right or left, and resume their posts, moving at the gallop by the shortest route.

When all officers have regained their posts, the squadron commander commands: 1. ***Pass in review,*** 2. ***Column of platoons,*** 3. ***MARCH,*** and returns saber. The staff of the squadron commander return saber with him. The march in review is then conducted in the same general manner as prescribed for reviews, except that the troops ordinarily pass the squadron commander only once,—at the walk. The band leads the march in review in such manner that the right flank of the column passes 20 yards from the squadron commander. The band (or massed buglers) continues to play until the last troop has left the parade ground.

Should he desire the officers of the squadron to witness the march past, the squadron commander, instead of giving the prescribed command for officers to resume their posts, directs them to return saber and form on the left of his commissioned staff. In this case, the first sergeants take command of their respective troops, and platoon sergeants of their platoons.

Squadron Parade, Dismounted. Squadron parade, dismounted, is executed in the same general manner as when mounted. Such exceptions as occur are enumerated below:

The machine-rifle platoons and the troop headquarters form in ***Line.***

All movements are made in *quick time.*

After the adjutant has reported the squadron as formed, the squadron commander commands: 1. ***Parade,*** 2. ***REST.*** The movement is executed successively from right to left by troop, in a manner similar to ***Draw saber*** when the parade is mounted. Personnel not armed with the rifle, assume the position of ***Parade rest without arms.*** After commanding ***SOUND OFF,*** the squadron commander and his staff assume the position of ***Parade rest*** with arms folded and raised so that the upper arms are horizontal. After the band has completed sounding off, or at the last note of *Retreat* when retreat is held in connection with parade, the squadron commander and his staff assume the position of *attention,* and the former commands: 1. ***Squadron,*** 2. ***ATTENTION.*** If retreat be held in connection with parade the squadron commander now commands: 1. ***Present,*** 2. ***ARMS.*** The movement is executed in the same manner as prescribed for ***Present saber*** when the parade is mounted. Troopers not armed with the rifle stand fast. All troop officers execute the hand salute. When the last troop has executed the movement, the squadron commander and his staff salute with the hand, and hold the salute while the band plays The *National Anthem* (or massed buglers sound *To the Standard*). The squadron commander then commands: 1. ***Order,*** 2. ***ARMS.*** At the first command, troop commanders terminate the salute and face their troops. At the second command, the movement is executed by the squadron in the same manner as prescribed for resuming the ***Carry saber*** when the parade is mounted.

Regimental Parade, Mounted.

Regimental parade is executed in the same general manner as prescribed for squadron parade. Such exceptions as occur are enumerated below.

Prior to the ceremony, each squadron, the machine gun troop, and the headquarters troop, are formed on their respective parade grounds and then marched to the vicinity of the place where the regimental parade is to be held.

The regiment forms for parade in ***Line,*** except that the machine gun troop is posted on the left of the line of squadrons, at 20 yards interval, and the regimental headquarters troop is posted 10 yards to the left of the machine gun troop. The band takes post 12 yards to the right of the right squadron. The adjutant (or other designated staff officer) takes post in front of the center of the regiment and at a distance from it approximating one-fourth the front of the regiment. The squadrons form successively on the designated line, in nu-

merical order from right to left. The machine gun troop and the headquarters troop take their positions, successively in that order, immediately after the left squadron has arrived on the line. The commissioned squadron staffs take post in ***Line,*** 3 yards in rear of their respective squadron commanders, the noncommissioned staffs in ***Line,*** 3 yards in rear of respective commissioned staffs; each staff is arranged from right to left in order of rank, the senior covering the squadron commander.

The machine gun troop forms in ***Line,*** or ***Line of squads,*** squads in ***Column,*** as directed. The one-pounder section forms in ***Line,*** or ***Line of squads,*** squads in ***Column of twos,*** as desired, and is posted 20 yards in rear of the base platoon. Troop headquarters detachment forms in ***Line of columns of twos,*** with 8 yards interval between columns. The supply officer commands the detachment, and takes post 3 yards in front of the second column. There are 4 columns, composed as follows: No. 1, all individually mounted troopers not leading pack animals; No. 2, kitchen, ration, picket line, and instrument packs and the troopers designated to lead these pack animals; No's 3 and 4, the reserve ammunition packs (and drivers) equally divided between the two columns. The troop headquarters detachment is posted 3 yards in rear of the 37 mm. section, this distance being measured from the rear-most individual of the 37 mm. section to the leader of the detachment. The second in command takes post on line with, and 3 yards to the left of the troop commander (no other personnel of the troop headquarters accompanies the troop commander). The first sergeant takes post 3 yards in rear of the troop headquarters detachment.

The headquarters troop is formed in ***Line of platoons,*** with 5 yards interval between platoons, the headquarters platoon on the right. Each platoon is formed into *two groups.* The *first group* consists of individually mounted troopers not leading pack animals, and is formed in ***Line.*** In the headquarters platoon, this group is arranged from right to left in the order: platoon headquarters, adjutant and personnel section, intelligence section, pioneer and demolition section. In the communications platoon, the first group is similarly arranged in the order: platoon headquarters, message center section, radio and panel section. Within each section personnel is arranged from right to left, in order of rank. *The second group* in each platoon consists of the pack animals and their drivers, formed in ***Column*** (or ***Columns) of twos,*** with 3 yards distance between twos, and is posted 3 yards in rear of the first group. The lieutenant of the supply section, or the pioneer and demolition officer, is detailed to command the headquarters platoon; and the communications platoon is commanded by its lieutenant (the regimental signal officer). These platoon leaders take post 3 yards in front of the center of the line of individually mounted troopers of their respective platoons. The pack animals of the communications platoon are formed into 2 columns of 6 pack horses each, with 10 yards interval between columns. An individually mounted trooper may be posted at the head and tail, respectively, of each column of pack animals. The troop headquarters is formed into a provisional platoon, in a similar manner, with individually mounted troopers arranged in order of rank from right to left, and is posted 5 yards to the left of the communications platoon. The senior noncommissioned officer present acts as platoon leader. The first sergeant takes post 3 yards in rear of the troop headquarters detachment.

The regimental commander takes post in front of, and facing, the center of the regiment, at a distance from the regiment approximating one-half its front. The members of his staff are arranged, and take position, in the same manner as prescribed for the squadron commander's staff.

At the regimental commander's command: 1. ***Draw,*** 2. ***SABER,*** each squadron commander (and staff) and the commander of the headquarters troop ***Draw saber*** and face their respective units. Beginning with the right squadron, sabers are drawn successively by squadron from right to left, each squadron com-

mander giving the proper command when the squadron on his right has *completed* drawing saber. Within each squadron, the movement is executed successively, from right to left, by troop, as prescribed for squadron parade (mounted). The headquarters troop draws saber after the last squadron; troopers of this unit leading pack animals and armed with the saber do not draw saber.

At the regimental commander's command: ***SOUND OFF,*** the band passes in front of the line of squadron commanders, or if no band be present, the assembled buglers *sound off in place.*

Present saber is executed successively, from right to left, by squadron; within each squadron the movement is executed successively, from right to left, by troop, as prescribed for squadron parade (mounted). The headquarters troop executes the movement after the left squadron has completed the movement. The commander of the machine gun troop salutes with the hand, or executes ***Present saber*** if armed with the garrison saber. The regiment returns to ***Carry saber*** in the same manner as prescribed for presenting saber.

At the adjutant's command: ***REPORT,*** squadron commanders, and the machine gun and headquarters troop commanders report their respective units successively, from right to left, in a manner similar to that prescribed for troop commanders at squadron parade.

At the adjutant's command: 1. ***Officers,*** 2. ***Center,*** 3. ***Trot,*** all officers commanding machine-rifle platoons, and the troop headquarters and one-pounder sections of the machine gun troop, advance through the nearest interval in the line, and take post on the line of rifle platoon commanders. When these officers have arrived in the prescribed positions, the adjutant commands: 4. ***MARCH.*** At this command all officers turn toward the center, and moving at the ***Trot,*** assemble in three lines facing to the front, in front of the center of the regiment. The rearmost line consists of platoon and corresponding unit leaders, the second, of troop commanders and junior captains, and the foremost line of squadron commanders and their commissioned staffs (commissioned staffs on the left of their respective squadron commanders). The distance between lines is 3 yards. When all three lines have assembled, the senior squadron commander gives the necessary commands, for marching the officers to the front at the walk, and for halting them when 6 yards from the regimental commander, by commands as prescribed for squadron parade (mounted). Salutes are exchanged and the regimental commander issues any instructions desired, and returns the officers to their posts at the gallop, as prescribed for squadron parade (mounted). Officers not armed with the saber salute with the hand.

After the officers have resumed their posts, the regimental commander commands: 1. ***Pass in review,*** 2. ***Column of platoons,*** 3. ***MARCH;*** and the regiment then marches in review in the same general manner as prescribed for regimental review, except that the troops ordinarily pass the regimental commander but once, at the walk.

Should the officers not be returned to their posts (after marching front and center) squadron sergeant majors take command of their respective squadrons, and first sergeants of the headquarters and machine gun troops assume command of those organizations.

Regimental Parade, Dismounted.

Regimental parade, dismounted, is executed in the same general manner as prescribed for mounted, regimental parade, and squadron parade, dismounted.

The machine gun troop forms in ***Line*** with the one-pounder section in ***Line,*** 20 yards in rear of the base platoon, and the troop headquarters detachment in ***Line,*** 3 yards in rear of the one-pounder section.

The regimental headquarters troop forms in ***Line,*** with the troop headquarters detachment in ***Line,*** 5 yards to the left of the communications platoon.

ESCORTS.

Purpose. Escorts are for the purpose of:

(1) Rendering honors to a national or regimental standard, in which case, a review may appropriately follow an escort to the standard.

(2) Escorting personages of high military or civil rank upon their arrival at, or departure from, a military post, or other place.

(3) Escorting the remains of a person entitled to such honor.

The first is called *Escort to the standard;* the second, *Escort of honor;* and the third, *Funeral escort.*

Escort to the Standard, Mounted.

When a new national or regimental standard (or both) is issued to a regiment, it is received with the ceremony of *Escort to the standard.*

If only a regimental standard is received, the national standard does *not* attend the ceremony. If only the national standard is received, the regimental standard attends the ceremony, and is posted in its regular position in the regiment during the actual reception of the national standard. If both standards are received, both standard bearers attend the ceremony and receive the standards.

The regiment is formed and sabers drawn as prescribed for regimental parade (mounted). The regimental commander and his staff then take post, facing to the front, 24 yards in advance of the squadron commander of the center (or right center) squadron. The staff of the regimental commander is formed and takes post as prescribed for regimental parade (mounted). During the absence of the escort troop the regiment is ***At ease.***

Upon indication from the regimental commander, the band (and attached buglers), without playing, moves straight to the front until clear of the line of the regimental commander, changes direction to the right, and halts. The regimental commander then commands: 1. ***Troop A (B, C, etc.),*** 2. ***ESCORT THE STANDARD,*** the troop thus detailed as escort having been previously designated by the regimental commander.

The designated troop forms ***Column of platoons*** to the front, with platoons in ***Line,*** changes direction to the right, and halts, with the troop commander 12 yards in rear of the band. After halting, the standard bearer (or bearers) take position in the line of file closers of the second platoon. The troop commander then commands: 1. ***Escort,*** 2. ***Forward,*** 3. ***MARCH;*** and the escort (band and designated troop) marches, without music, to the regimental commander's office, quarters, or other place where the standard (or standards) is being temporarily kept. Upon arrival thereat, the troop commander halts the escort in ***Line,*** facing the entrance, with the band on the right.

The senior lieutenant of the troop, with his orderly, the standard bearer (or bearers), and a sergeant designated by the troop commander, now assemble in front of the entrance, return sabers, dismount, and turn their horses over to the lieutenant's orderly. The standard bearer (or bearers), preceded by the lieutenant and followed by the sergeant, then enter and secure the standard (or standards).

The standard bearer (or bearers) comes out, followed by the lieutenant and sergeant. All mount, draw saber (except standard bearer, or bearers), and form in ***Line,*** the lieutenant on the right, and the sergeant on the left, of the standard (or standards); the orderly, moving around the flank, resumes his post in the troop. The troop commander then commands: 1. ***Present,*** 2. ***SABER.*** The entire escort, including the lieutenant and sergeant with the standard (or standards), execute ***Present saber,*** while the buglers sound; ***To the Standard.***

The troop commander then commands: 1. ***Carry,*** 2. ***SABER.*** The lieutenant and sergeant resume their posts; and the troop commander forms the escort in ***Column of platoons,*** platoons in ***Line,*** with the band in front, and halts it.

The standard bearer (or bearers) then take post in rear of the center of the second platoon, midway between the second and third platoons.

The troop commander then marches the escort back to the regiment, the band playing. The escort approaches the regiment from the most convenient direction to enable it to form ***Line*** on its leading platoon, and halt, with the center of the troop 40 yards from, and facing, the regimental commander. The band takes position on the right of the escort troop, at 12 yards interval, and ceases playing. The standard bearer (or bearers) advance through the nearest platoon interval, and halts 10 yards in front of, and facing, the regimental commander.

The regimental commander faces the regiment (his staff standing fast), and commands: 1. ***Present,*** 2. ***SABER.*** The regiment executes the movement in the same manner as prescribed for regimental parade, (i. e., successively by troop from the right) and the troop commander of the escort troop gives the commands to cause his troop to execute ***Present saber.*** When the left troop has come to present saber, the regimental commander faces the front, and salutes. His commissioned staff salute with him. The buglers then again sound: *To the Standard.* The regimental commander then faces about, and commands: 1. ***Carry,*** 2. ***SABER.*** The movement is executed in the same general manner as prescribed for ***Present saber,*** the escort troop resuming the ***Carry*** at the command of its leader. The standard bearer (or bearers) then take the prescribed post of the standard in the regiment.

The troop commander of the escort then forms the escort troop in ***Column of platoons*** to the front, changes direction to the right, and, preceded by the band, marches the escort around the left flank of the regiment to its original place in the line. The band plays until the escort clears the left of the line, when it ceases playing, and returns to its post on the right, passing in rear of the regiment.

In case the band is dismounted, the buglers are formed mounted, prior to the ceremony, by the senior bugler present. At adjutant's call he marches them to the place where the ceremony is to be held, and forms them, in ***Column of fours,*** on line with, and 5 yards to the right of the band. The senior bugler takes post 3 yards in front of the center of the column. The ceremony then proceeds as described above, the massed buglers acting as prescribed for the band. The buglers play until the escort troop nears the regiment at which time they cease playing, and the band, at its post on the right of the line, begins playing, and continues to do so until the escort troop is posted facing the regiment. After the buglers have sounded: *To the Standard,* and the standard has taken post in the regiment, the band plays as the escort troop returns to its post in the regiment. At the conclusion of the ceremony, when the buglers have cleared the left of the line, the senior bugler directs them to fall out and join their respective organizations.

A squadron executes the ceremony of *Escort to the standard* in the same general manner as prescribed for the regiment.

Escort to the Standard, Dismounted.

The ceremony is conducted in the same general manner as when mounted. Such exceptions as occur are enumerated below:

The regiment forms as prescribed for dismounted parade.

The senior lieutenant's orderly (of the escort troop) remains in ranks.

Upon receiving the standard (or standards), the escort commander commands: 1. ***Present,*** 2. ***ARMS.*** Officers render the hand salute.

After the buglers have sounded: *To the Standard,* the escort commander commands: 1. ***Order,*** 2. ***ARMS.***

When the escort has returned and formed in front of the regiment, the regimental commander commands: 1. ***Present,*** 2. ***ARMS.*** The movement is executed as prescribed for dismounted parade. When the left troop has come to

Present arms, the regimental commander faces the front, and renders the hand salute, his staff saluting (with him) in the same manner. After *To the Standard* has been sounded, the regimental commander commands: 1. ***Order,*** 2. ***ARMS.*** The movement is executed in the same manner as prescribed for ***Present arms.*** The escort troops executes ***Order arms*** at the command of its leader.

Escort of Honor.

The organizations for an escort of honor are designated by the commanding officer, the strength being as prescribed by army regulations.

An officer is appointed to attend the personages escorted, and to transmit to the commander of the escort such communications as may be desired.

The escort forms, in ***Line,*** opposite the place where the personage to be escorted is to appear. The band (or assembled buglers) forms on the flank of the escort toward which it will march. Upon the appearance of the personage to be escorted, the escort is brought to ***Attention,*** and, when he has taken position from which to receive them, the prescribed honors due his rank are rendered. Ordinarily, the person so honored then inspects his escort.

When the escort has been formed at a considerable distance from the point where the personage is to be received, as, for example, where a courtyard or wharf intervenes, a double line of troopers, at suitable intervals, facing inward, may be posted from that point to the position of the escort. The troopers successively salute as the personage passes, and are then relieved and rejoin the escort.

Following the rendering of honors and the inspection, the escort is formed into ***Column of platoons,*** platoons in ***Line, Column of squads,*** squads in ***Line,*** or ***Column of fours,*** as is desirable or suitable, and takes up the march, the personage escorted with his staff or retinue taking position in rear of the column. Several officers or noncommissioned officers may be detailed to ride on either side of the conveyance of the personage escorted as a personal bodyguard. When the personage leaves the escort, ***Line*** is formed, and, when he has taken position from which to receive them, the prescribed honors are rendered, as at time of receiving him.

Honors are rendered in accordance with the provisions of Army Regulations 600-30.

Funeral Escort, Mounted.

The composition and strength of the funeral escort is prescribed in Section II, AR 600-30.

Six pallbearers are selected, so far as practicable from the grade of the deceased. If the deceased was a commissioned officer, the casket is borne by noncommissioned officers who are designated as casket bearers. When appropriate to the occasion, pallbearers may ride in motor cars. Casket bearers, however, are habitually dismounted and march as prescribed in sub-paragraph *f*, below, except that when pallbearers ride in motor cars, the casket bearers march as prescribed for pallbearers.

Prior to the funeral, the necessary arrangements are made by the commander of the escort (or a designated officer) and the clergyman.

The national standard, when available, is carried by all funeral escorts.

When the remains are escorted from the quarters of the deceased, (or other place) to the church for the funeral service, the escort is formed in ***Line,*** facing the quarters (or other place), with the band on the flank toward which the column is to march. As the remains are carried out, the escort commander causes ***Present saber*** to be executed, and the band plays an appropriate air. If the deceased is entitled to special honors, the band first plays the *National Anthem* (or the buglers sound: *To the Standard*), a march, flourishes, or ruffles, according to the rank of the deceased. At the conclusion of the musical honors, if any, and after the remains have been placed on the caisson, the commander

of the escort causes the escort to resume ***Carry saber.*** Other organizations, if present, are brought to ***Attention*** by their commanders, who then salute.

The remains having been placed on the caissons, or in the hearse, the escort forms in column of platoons in ***Line, Column of squads,*** squads in ***Line,*** or in ***Column of fours,*** as desirable or suitable. The funeral procession is formed in the following order: (1) band; (2) escort; (3) clergy; (4) casket, pallbearers and casket bearers (pallbearers in ***Column of files*** on each side of the casket, the leading member of each column opposite the front wheels of the hearse or caisson; casket bearers in ***Column of twos,*** immediately in rear of the casket—see above); (5) mourners; (6) members of the former command of the deceased (if present), (7) other officers and enlisted men, in order of rank (wearing side arms); (8) distinguished persons; (9) delegations; (10) societies; (11) other civilians.

At the funeral of a mounted officer or enlisted man, his horse, in mourning caparison, follows the caisson or hearse.

In case the remains are first conducted to a church or crematory, the remains are received and the funeral procession is formed as prescribed above.

The escort marches slowly, the band, if present, playing a dirge. If the distance to be marched is considerable, the escort may march ***At ease*** until it approaches the church, or crematory, when it is brought to ***Attention.*** The band does not play while the escort marches ***At ease.***

Upon arrival at the church or crematory, the escort forms in ***Line*** facing the entrance. As the remains are borne into the building, the escort pays the same honors as prescribed in sub-paragraph *e,* above.

During ceremonies at the crematory, the firing of volleys and the sounding of taps are omitted, the escort remaining outside during the services. After cremation, if the ashes are interred with military honors, the escort is conducted in the usual manner, and the usual procedure is followed at the grave.

Following services at the church, the escort receives the remains as prescribed in sub-paragraph *e,* above, and the funeral procession then forms and marches to the cemetery as prescribed above.

Should the entrance to the cemetery prevent the caisson or hearse from accompanying the escort to the grave, the column is halted at the entrance while the casket is removed from the caisson or hearse, and the column then continues the march to the grave. Mounted units, when unable to enter the cemetery, turn out of the column, form ***Line*** facing the entrance, and salute as the remains pass. If appropriate, cavalry may be dismounted near the entrance and marched into the cemetery on foot; in this case, the procedure is as for *Funeral escort, dismounted.*

The escort having arrived, it is formed, in ***Line,*** opposite to, and facing, the grave. As the casket is removed from the caisson or hearse, the escort is brought to ***Present saber*** (unless dismounted, in which case, it is brought to ***Attention,*** officers, guidons, and standards other than the National Standard saluting), the special honors to which the deceased is entitled, if any, are rendered, and the band plays a dirge. The escort remains at present saber (or ***Attention,*** if dismounted) while the casket is carried along its front, and while it is being placed over the grave. The escort is then brought to ***Port saber*** (or to ***Parade rest*** if dismounted) and officers and men bow their heads during the reading of the service. At the conclusion of the funeral services, the casket is lowered into the grave, and the commander causes the escort to return saber and dismount (unless already dismounted). He then forms the escort (less horseholders, if mounted) at a convenient place opposite the grave and causes it to fire three volleys of blank cartridges over the grave, the *muzzles of the rifles being well elevated.* When the escort is greater than a squadron, *one* squadron only is designated to dismount and fire the volleys. A bugler at the head of the grave sounds *Taps,* which concludes the ceremony.

The escort is then mounted, marched to the point of assembly, and dismissed. The band does not play until it has left the cemetery inclosure.

In cases where the remains have been cremated the word "casket" as used above will be interpreted to include the receptacle containing the ashes of the deceased.

Funeral Escort, Dismounted. Funeral escorts, dismounted, are conducted in the same general manner as when mounted, except as follows:

The escort comes to ***Present arms*** instead of ***Present saber,*** and to ***Order arms*** instead of ***Carry saber.***

After the casket is placed over the grave, the escort is brought to ***Parade rest;*** and officers and men bow their heads during the reading of the service, and while the casket is being lowered into the grave.

CHAPTER XIV.

GUARD MOUNTING.

Guard mounting may be either formal or informal, mounted or dismounted. The uniform, arms, and equipment are prescribed by the commanding officer. If arms other than those listed in this section be carried, the ceremony is varied as may be necessitated thereby.

Formal Guard Mounting, Mounted.

At assembly, each first sergeant, dismounted, forms the guard detail (except the supernumeraries) of his organization in ***Line,*** at ***Stand to horse.*** The noncommissioned officers detailed for guard form as file closers. After the first sergeant has verified and inspected the detail, he turns it over to the senior noncommissioned officer, who mounts and causes the detail to mount.

The band accompanied by the attached buglers (or if no band is present, the massed buglers), takes post on the parade ground so that the left of its front rank will be 12 yards to the right of the rank of the guard when formed. When the band is dismounted at mounted guard mounting, the massed buglers form mounted in ***Column of fours,*** 5 yards to the right of, and on line with, the band. At adjutant's call, the adjutant (or other designated officer) takes post so as to be 20 yards in front, and facing the center, of the guard when formed. The sergeant major takes post 12 yards to the left of the front rank of the band and facing to the left. The band plays in appropriate time, and the details are marched to the parade ground by their respective senior noncommissioned officer. If any detail does not include a noncommissioned officer, one is designated to march the detail to guard mounting. The detail designated to take its place on the right of the guard is marched in rear of its senior noncommissioned officer to the line so that, upon halting, the head of the horse of the man on the right will be on line with, and near, the head of the sergeant major's horse. The noncommissioned officer, having halted his detail, turns to the left, advances the necessary distance, and turns to the left about so as to place himself, facing the sergeant major, at a distance a little greater than the front of his detail, and commands: 1. ***Right,*** 2. ***DRESS.*** Noncommissioned officers of the detail in the line of file closers rein back so as to be 6 yards in rear of the rank. The noncommissioned officer in command of the detail then commands: ***FRONT,*** salutes, and reports: ***The detail is correct*** or ***So many noncommissioned officers and privates absent.*** The sergeant major returns the salute. The noncommissioned officer in charge of the detail passes by the right flank of the guard, and takes post on the line of file closers in rear of the right trooper of his detail, or if he has not been detailed for guard, passes between the right flank of the guard and the left flank of the band, and retires. Should there be more than one detail, each takes its place, in a similar manner, on the left of the preceding detail.

When the commander of the last detail has reported to the sergeant major, the latter draws saber, and causes the guard to count fours. He then passes completely around the guard. While doing so, if there be more than six fours, he divides the guard into two or more platoons, designating noncommissioned officers as platoon leaders, when such will be required. Returning to the right of the rank, he commands: ***RIGHT DRESS,*** verifies the alignment of the rank and the line of file closers, takes post facing to the left, 3 yards in front of the right flank of the guard, and commands: ***FRONT.*** He then moves to a point midway between the adjutant and the center of the guard, halts facing

the adjutant, salutes and reports: *Sir the details are correct,* or *So many sergeants, corporals or privates are absent.*

The adjutant returns the salute, directs the sergeant major: *"Take your post,"* and then draws saber. The sergeant major turns about, and takes post 3 yards to the left of, and on line with, the rank of the guard. When the sergeant major has reported to the adjutant, the officer of the guard approaching from the rear, between the band and the guard, takes post facing to the front, 12 yards in front of the center of the guard, and draws saber. The adjutant then directs the officer of the guard: *INSPECT YOUR GUARD, SIR.*

The officer of the guard turns about and commands: 1. *Draw,* 2. *SABER,* followed by: 1. *Prepare for inspection,* 2. *MARCH.* He cautions: *SABERS WILL BE INSPECTED,* and then inspects sabers. During the inspection, the band plays.

Having inspected sabers, the officer of the guard returns to the right of the rank, and commands: 1. *Return,* 2. *SABER.* He then cautions: *PISTOLS WILL BE INSPECTED,* and inspects pistols.

The adjutant, when the officer of the guard begins his inspection, returns saber, observes the general condition of the guard, and falls out any man who is unfit for guard duty or who does not present a creditable appearance. Individuals who have been directed to fall out report immediately to their respective first sergeants, who send (under charge of a noncommissioned officer) supernumeraries to report to the commander of the new guard at the guard house. The adjutant, when so directed, selects orderlies and color or standard sentinels, and notifies the commander of the guard of his selections.

When the guard is not divided into platoons, if there be a junior officer of the guard, he takes post at the same time as the senior officer of the guard, facing to the front, 3 yards in front of the center of the guard. If the guard has been divided into platoons, he takes post 3 yards in front of the center of the first platoon.

If there be no officer of the guard, the adjutant conducts the inspection of the guard, as prescribed above, and during the inspection directs the senior noncommissioned officer to command the guard. A noncommissioned officer commanding the guard takes the post prescribed for the officer of the guard.

The inspection completed, the adjutant places himself about 30 yards in front, and facing the center, of the guard, draws saber and commands: *POSTS.* The commander of the guard, if the guard has not been divided into platoons, takes post 6 yards in front of the center of the guard, facing to the front, and draws saber. If the guard has been divided into platoons, the commander of the guard takes post 12 yards in front of the center of the base platoon. The platoon leaders take post 3 yards in front of the center of their respective platoons, facing to the front, and draw saber. The file closers resume their places 3 yards in rear of the rank. The new officer of the day takes post in front of, and facing, the guard, at a distance of about 30 yards from the adjutant. The old officer of the day takes post 4 yards to the right of, and 1 yard less advanced than the new officer of the day.

The adjutant commands: 1. *Draw,* 2. *SABER,* and *SOUND OFF,* whereupon the band plays and passes in front of the commander of the guard as far as the left of the line, executes a countermarch, marches back to its post on the right of the line, faces to the front by executing another countermarch, halts and ceases playing. If no band be present, the massed buglers and sound off *in place.* If the band be dismounted, the massed buglers do not accompany the band in its parade before the guard. The adjutant then commands: 1. *Present,* 2. *SABER,* faces the officer of the day, salutes, and reports: *Sir, the guard is formed.* The new officer of the day salutes with the hand, and directs the adjutant: *MARCH THE GUARD IN REVIEW, SIR.*

The adjutant turns about, commands: 1. *Carry,* 2. *SABER,* and gives the

prescribed commands to pass the guard in review. At the adjutant's preparatory command, the band moves forward and turns to the right so as to place itself directly in front of the center of the guard when the latter is faced in the new direction, and halts. At the command of execution, the band plays, and passes in review. If the band is dismounted, it does not accompany the guard in the march in review, but, at the adjutant's preparatory command: ***Pass in review,*** is moved to the rear sufficiently far to permit the guard to pass. In this case the massed buglers, who are mounted, lead the march in review, and the band plays from its new position.

If the guard has not been divided into platoons, the adjutant's command to pass in review is: 1. ***Pass in review,*** 2. ***Right turn,*** 3. ***MARCH.*** At the command of execution, the guard follows the band at 12 yards distance. The commander of the guard commands: 1. ***Right turn,*** 2. ***MARCH,*** and takes post 6 yards in front of the center of the guard (or 6 yards in front of the junior officer of the guard if present). At the command: ***MARCH,*** given by the commander of the guard, the guard executes ***right turn,*** and passes in review, the adjutant placing himself abreast of the rank, and the sergeant major abreast of the line of file closers, each 6 yards from the left flank.

If the guard has been divided into platoons, the adjutant's command to pass it in review is: 1. ***Pass in review,*** 2. ***Column of platoons, on first platoon,*** 3. ***MARCH.*** The commander of the guard commands: 1. ***Column of platoons on first platoon,*** 2. ***First platoon right turn,*** 3. ***MARCH.*** The commander of the guard takes post 6 yards in front of the leader of the first platoon, and the adjutant and sergeant major take post abreast of the rank of the first platoon and of the second platoon respectively, each 6 yards from the left flank.

The band and the guard pass in review at the walk. The drum major, the commander of the guard, the platoon leaders, the adjutant, and the sergeant major salute the new officer of the day when 6 yards from him and terminate their salutes when 6 yards beyond. All who salute turn head and eyes smartly to the right, continue to look toward the new officer of the day while saluting, and, upon completion of the salute, turn head and eyes smartly to the front. The officer of the day returns the salute of the commander of the guard only.

The band, having passed the officer of the day, turns to the left out of column, places itself opposite to, and facing, him, and continues to play until the guard leaves the parade ground. The buglers detach themselves from the band when the latter turns out of column, and remain in front of the guard, commencing to play when the band ceases.

When the guard has passed 12 yards beyond the officer of the day, the adjutant halts. The sergeant major halts abreast of the adjutant and 1 yard to his left. They then return saber, salute, and retire. The officers of the day turn toward each other, salute, and proceed to the place where the old guard is to be relieved. The commander of the guard, without halting, causes the guard to break into ***Column of fours,*** and marches it to the relief of the old guard.

The march in review may be omitted. In this case, the new officer of the day directs the adjutant: ***MARCH THE GUARD TO ITS POST, SIR.*** The adjutant then faces the guard, and commands: 1. ***Guard to its post,*** 2. ***Fours right (left),*** 3. ***MARCH,*** or if appropriate, 3. ***Trot,*** 4. ***MARCH.*** At the command ***MARCH,*** the assembled buglers form ***Column of fours,*** and place themselves 12 yards in front of the commander of the guard. The adjutant and sergeant major return saber, salute, and retire. The officers of the day turn toward each other, salute, and proceed to the place where the old guard is to be relieved. The band retires.

Relief of the Old Guard. As the new guard approaches the guard house, the old guard is formed in ***Line*** at ***Carry saber,*** its buglers (or bugler) 3 yards on its right. When the buglers at the head of the new guard arrive opposite the left of the old guard, the old guard presents saber. Both commanders salute.

When the new guard has passed the old guard, the commander of the latter commands: 1. *Carry,* 2. *SABER.*

After passing the old guard the commander of the new guard cautions: *INCLINE TO THE RIGHT,* then, *INCLINE TO THE LEFT,* and commands: 1. *Fours left,* 2. *MARCH,* and 1. *Guard,* 2. *HALT,* so as to halt his guard facing the front, on line with, and about 10 yards to the right of, the buglers of the old guard. The buglers of the new guard take post 3 yards to the right of the rank.

The new guard being dressed, the commanders of both guards, in front of, and facing, the center of their respective guards, command: 1. *Present,* 2. *SABER,* turn to the front, and salute. Each commander then resumes the carry, faces his guard and commands: 1. *Carry,* 2. *SABER.*

Each guard is then presented by its commander to its officer of the day. If but one officer of the day be present, or if one officer acts in the capacity of both old and new officer of the day, each guard is presented to him by its commander. After the salutes have been acknowledged by the officers of the day, each guard returns saber.

The commander of the new guard then directs the orderly or orderlies to fall out and report as ordered. He falls out those members of the guard who may be necessary for detached posts, and places them under charge of the proper noncommissioned officer. He then divides the guard into three reliefs, viz., first, second, and third (from right to left), and directs a list of the guard to be made by reliefs.

The sentinels and detachments of the old guard are at once relieved by members of the new guard, the two guards standing *At ease* and dismounted while the changes are being made. The commander of the old guard transmits to the commander of the new guard all his orders, instructions, and information concerning the guard and its duties, and the old guard is dismissed. The commander of the new guard then has his own guard fall out, and takes possession of the guardhouse. In cases where a considerable period of time is required to relieve certain members of the old guard, that portion of the old guard which has already been relieved, may be dismissed without additional delay.

Formal Guard Mounting, Dismounted.

Formal guard mounting dismounted is conducted in the same general manner as when mounted. Such exceptions as are not obvious are enumerated below:

The detail designated to take its place on the right of the guard is marched to the line so that, upon halting, the right trooper is close to, and opposite, the left arm of the sergeant major. At the command: 1. *Right,* 2. *DRESS,* the right trooper of the detail so places himself that his breast is touching lightly the left arm of the sergeant major. The noncommissioned officer in charge of the detail, if armed with the rifle, remains at the *Right shoulder* arms upon halting his detail. If the noncommissioned officer in charge of the detail has been detailed for guard, he comes to the *Order arms* upon taking his place in the line of file closers.

Sabers are not carried. Salutes prescribed with the saber are rendered with the hand. Troopers not armed with the rifle stand fast at the command: 1. *Present,* 2. *ARMS.* Where 1. *Present,* 2. *SABER,* and 1. *Carry,* 2. *SABER* are prescribed in mounted guard mounting, 1. *Present,* 2. *ARMS* and 1. *Order,* 2. *ARMS* respectively, will be substituted in dismounted guard mounting.

After commanding: 1. *Prepare for inspection,* 2. *MARCH,* the commander of the guard cautions: *RIFLES WILL BE INSPECTED,* and following the inspection of rifles, he cautions: *PISTOLS WILL BE INSPECTED.* In case the guard be armed with pistols only, the former caution is omitted.

Following the command: *POSTS,* the adjutant commands: 1. *Parade,* 2. *REST,* followed by *SOUND OFF,* and himself assumes the position of

Parade rest. When the band has resumed its post (or when massed buglers have completed the *Sound off),* the adjutant, before presenting arms, comes to ***Attention,*** and commands: 1. ***Guard,*** 2. ***ATTENTION.***

All movements are executed in quick time.

While the band is sounding off, the officers of the day stand at ***Parade rest*** with folded arms, taking this position and resuming the ***Attention*** with the adjutant.

The officers of the day again take the position of ***Parade rest,*** with arms folded, at the first note of the march in review, and resume the ***Attention*** as the band arrives opposite them.

Informal Guard Mounting. Informal guard mounting is held, as directed by the commanding officer, when, due to inclement weather, darkness, fatigue occasioned by long marches, interference with more important duties, etc., a formal ceremony would be inappropriate.

In informal guard mounting, the band is not present. The massed buglers take the place of the band and sound off from their position on the right of the guard. The march in review is omitted.

CHAPTER XV.

INSPECTIONS.

Purpose. The purpose of inspections is to determine the completeness, serviceability, cleanliness, general appearance, and condition of the personnel, animals, arms, clothing, equipment, etc., of a command.

Review. In commands larger than a troop, a review frequently precedes inspection.

Order of Inspection. Inspecting officers normally begin their inspection at the right of each rank, and at the head of each column.

Unit Commander. If the inspecting officer be other than the unit commander, the latter prepares his unit for inspection, and awaits the arrival of the inspecting officer. Upon the approach of the inspector, the unit commander brings his unit to *Attention* and salutes the inspector. The latter returns the salute, and instructs the unit commander as to the kind of inspection he desires. The unit commander then gives the necessary commands to his unit, and accompanies the inspector, taking post on the latter's right.

Rifle Troop Inspection, Mounted.

The troop is ordinarily inspected in the following formation: the rifle platoons in *Line;* the machine-rifle platoon in *Line,* 20 yards in rear of the base rifle platoon; the head of troop headquarters on line with the machine-rifle platoon and in rear of the rifle platoon on the left of the base platoon; and the transportation in *Line,* 10 yards in rear of the machine-rifle platoon, with 5 yards interval between vehicles.

The inspection is divided into two main parts: first, an inspection of the troop while mounted, during which sabers are inspected and attention paid to the general appearance of the personnel, animals, and equipment; second, a more detailed inspection of the troop after dismounting, during which rifles, pistols, machine rifles, pack loads, and miscellaneous equipment are inspected, and attention paid to the clothing and individual equipment of the personnel and to the equipment and shoeing of the animals.

The troop being in *Line* at the halt, the troop commander takes post 10 yards in front of the right flank of the troop, faces to the left, draws saber, and commands: 1. *Prepare for inspection,* 2. *MARCH.* At the command **MARCH,** posts are taken as follows:

The junior captain is 3 yards to the left of the right flank of the troop, and 10 yards in front of the line of troopers.

Platoon leaders and the noncommissioned officer commanding troop headquarters move 4 yards to the front, halt, and dress to the right.

The first sergeant, the bugler accompanying the troop commander, and the guidon take post, in that order from right to left, on the right of the rank of the right rifle platoon.

Platoon sergeants and file closers remain 3 yards in rear of their respective platoons.

The noncommissioned officer in charge of the troop headquarters forms it into two groups. The first group consists of the individually mounted troopers not leading pack animals, and is formed in *Line,* in the position prescribed above. This group counts fours when formed. The second group consists of the pack animals and their drivers, and is formed in *Column of twos,* with 3 yards distance, in the order; kitchen packs, ration packs, picket line packs. The second group takes post 3 yards in rear of the center of the first group. The noncom-

missioned officer commanding the troop headquarters takes post in front of the center of the first group at the same distance as prescribed for platoon leaders (10 yards).

The troop transportation, if present, is posted in the formation and position prescribed above with vehicles arranged in the following order from right to left: spring wagon, ration and baggage wagons, forage and pioneer wagon, combat wagon.

Each trooper dresses to the right, and covers from head to rear, the guidon being the base. The troop commander causes any inaccuracies in alignment and cover to be corrected, and verifies the assigned posts of units and individuals not in ranks. He then resumes post 10 yards in front of the guidon, faces to the left, and commands: 1. *Draw*, 2. *SABER*, after which he cautions: ***SABERS WILL BE INSPECTED.*** He then inspects the junior captain, the platoon leaders, and the noncommissioned officer commanding troop headquarters, after which they face about, and remain at ease, unless directed by the troop commander to accompany him during the inspection.

The troop commander then proceeds to the right of the line for the inspection of sabers. During this inspection he also notes the general appearance of personnel, animals, and equipment. He inspects the first sergeant, bugler, and guidon, then the first platoon, beginning at the right. All troopers execute ***Inspection saber*** in the following manner: As the inspector approaches the first two troopers they execute the first movement of ***Inspection saber.*** The first trooper, as the inspector comes in front of him, makes a slight pause, then executes the second movement of ***Inspection saber.*** As the inspector moves in front of the second trooper, the first trooper resumes the position of ***Carry saber,*** and the second trooper makes a slight pause, then executes the second movement of ***Inspection saber,*** and the third trooper executes the first movement of ***Inspection saber.*** As the inspector moves along the rank, the movements described above are executed successively by all troopers armed with the saber.

The troop commander inspects the rifle platoons as one group, from right to left in front, and from left to right in rear, first passing along the front and rear of the line of troopers, then along the front and rear of the line of file closers. In a similar manner, he next inspects the machine rifle platoon. He then proceeds to the troop headquarters, inspecting first the individually mounted troopers, then the column of pack horses and their drivers (starting at the head of the column). Finally, he inspects the troop transportation, beginning with the right vehicle.

The inspection of sabers having been completed, the troop commander resumes post 10 yards in front of the guidon, faces to the left, and commands: 1. ***Return,*** 2. ***SABER,*** followed by 1. ***Prepare to dismount,*** 2. ***DISMOUNT.*** The bugler rides forward and takes the troop commander's horse, and the first sergeant and guidon stand fast. In each machine rifle squad the gunners and carriers ride forward 4 yards, in the same manner as the odd numbered troopers of the rifle squads, except that the carriers incline slightly to the right in moving forward. The troop commander, the junior captain, platoon leaders, and the noncommissioned officer commanding troop headquarters return saber and dismount. The remainder of the inspection is made without forming rank.

The troop commander now cautions: ***RIFLES AND MACHINE RIFLES WILL BE INSPECTED.*** At this caution each (mounted) trooper, except machine rifle gunners, passes the snaffle reins over his horse's head, inserts his right arm through the snaffle reins, the bight resting on his shoulder, and, if armed with the rifle, assumes the position of ***Order arms.*** Each machine rifle gunner turns his horse over to his carrier, unpacks his machine rifle, secures his horse from his carrier, and then resumes his original place in the same position as described above for other mounted troopers. As the inspector approaches

the right of the rank of odd numbers, the first trooper on the right, if armed with the rifle, executes ***Inspection arms.*** The inspector takes the rifle, grasping it with his right hand just above the rear sight, the trooper dropping his hands smartly to his sides. The inspector inspects the rifle, then, with the hand and rifle in the same position as in receiving it, hands it back to the trooper. The latter takes the rifle with the left hand at the balance, executes ***Port arms,*** and comes to ***Order arms.*** As the inspector returns the rifle, the next trooper (on the left) executes ***Inspection arms,*** and so on throughout the rank. Should the rifle be inspected without handling, the trooper executes ***Port arms*** followed immediately by ***Order arms*** as soon as the inspector has passed to the next trooper. Machine rifles are inspected in a similar manner, each gunner raising and passing his machine rifle to the inspector as the inspector steps in front of him. After a machine rifle has been inspected and returned to the gunner, the latter turns his horse over to his carrier, packs the machine rifle, and, after securing his horse, resumes his former position. The rifles of wagoners are inspected in an informal manner, each wagoner passing his rifle to the inspector without dismounting.

The inspection of rifles and machine rifles having been completed, the troop commander resumes post 10 yards in front of the guidon, faces to the left, and cautions: ***PISTOLS WILL BE INSPECTED.*** At this caution each trooper armed with the service rifle inserts his rifle in the scabbard and resumes his former position. As the inspector approaches the right of each rank, the first *two* troopers on the right execute ***Inspection pistol.*** The inspector grasps the first trooper's pistol with his left hand, and, after examining it, returns it to the trooper in the same position as he received it. The first trooper executes ***Return pistol,*** and, as the inspector moves in front of the second trooper, the third trooper executes ***Inspection pistol.*** The inspection continues in this manner along the rank. Should the pistol be inspected without handling, the trooper executes ***Return pistol*** after the inspector has passed to the next trooper.

Following the inspection of pistols, the troop commander resumes post (10 yds. in front of the guidon), faces to the left, and cautions: ***MISCELLANEOUS EQUIPMENT WILL BE INSPECTED.*** The inspector then proceeds to inspect all pack loads, transportation loads, bugles, hand axes, wire cutters, field glasses, etc. In case the inspector does not desire to inspect any particular article of miscellaneous equipment, the troop commander adds, after the above caution: ***EXCEPT*** (*names of excepted articles*). If transportation loads are to be inspected, the troop commander directs the first sergeant to detail the necessary personnel to unload and reload the transportation. Troopers equipped with bugles, hand axes, wire cutters, and field glasses present these articles to the inspector, as he arrives in their immediate front. In machine rifle squads, each carrier turns his mount over to his gunner, and unpacks his ammunition, placing the ammunition boxes in line on the ground, 1 yard to the right of the pack horse's head, boxes open, hinged edge to the rear. As soon as they have unpacked their own gun crew's ammunition, both carriers unpack and lay out, in a similar manner, the ammunition carried on the squad ammunition pack horse. Each carrier then takes post, at ***Attention,*** 1 foot in rear of the center of the ammunition boxes of his own gun crew, facing to the front. When the inspector has inspected the ammunition of the squad and has passed to the next squad, the carriers repack the ammunition, secure their mounts, and resume their former positions. The pack loads of the troop headquarters, when unpacked, are placed on the ground 2 yards to the right of the respective pack horses to which they pertain. The noncommissioned officer in charge of the troop headquarters details those troopers of the troop headquarters who are not leading pack animals to unpack the various loads and lay them out. The mounts of these troopers, while thus engaged, are held by the drivers of the pack animals. When the inspector has completed his inspection of the troop headquarters, the

noncommissioned officer in charge supervises the repacking of all loads. As soon as loads have been repacked, the troopers engaged in this task secure their horses and return to their original positions.

The troop commander may have each platoon inspected by its leader. In this case, the troop commander, after having prepared the troop for inspection, commands: *PLATOON LEADERS WILL INSPECT THEIR PLATOONS.* Platoon leaders then inspect their platoons in the same general manner as prescribed for the troop. When it is necessary for a platoon leader to dismount, his horse is held by his platoon orderly. The troop commander makes a detailed inspection of the troop headquarters and transportation, or directs the junior captain to do so while he makes a general inspection of the entire troop. When a platoon leader has completed his inspection, he permits his platoon to stand *At ease.*

The inspection having been completed, the troop commander commands: 1. *Prepare to mount,* 2. *MOUNT,* followed by *FORM RANK.* When ranks have been reformed, the troop commander commands: *POSTS,* at which command all troopers out of ranks resume their normal posts, and the column of pack animals of troop headquarters closes on its leading pack horse and driver to 4 feet distance.

Rifle Troop Inspection, Dismounted.

The troop is formed in *Line of platoons,* each platoon in *Line,* the machine rifle platoon on the left of the rifle platoons at 5 yards intervals; the troop headquarters is formed in *Line,* 5 yards to the left of the machine rifle platoon.

The inspection is conducted in the same general manner as when mounted, except that sabers, pack loads, and transportation are not inspected. In the inspection of pistols, each trooper, prior to executing *Inspection pistol,* places the butt of his rifle approximately 12 inches in front of his toes, barrel to the rear, muzzle resting against his body. (The muzzle may be inserted under the cartridge belt to prevent the rifle from falling.) After his pistol has been inspected and returned, each trooper resumes the position of *Order arms.*

When the inspection has been completed and the troop dismissed, if quarters are to be inspected, the troopers stand, uncovered, near their respective bunks. In camp, they stand covered without equipment, in front of their tents. If equipment is to be inspected, either in quarters or in camp, each trooper arranges the clothing and equipment, in the prescribed manner, on his bunk or in front of his half of his shelter tent, as the case may be. During inspection of quarters or camp, the troop commander is usually accompanied by the platoon leaders. The first sergeant precedes the troop commander and calls the troopers to *Attention* on entering each squad room, or upon approaching the troop line of tents.

Rifle Squadron Inspection.

Mounted. The squadron is habitually inspected in column of troops, each troop in *Line,* as prescribed for troop inspection.

The squadron being formed as indicated above, and at the halt, the squadron commander and his staff draw saber. The squadron commander turns about, his staff standing fast, and commands: 1. *Prepare for inspection,* 2. *MARCH.* At the command of execution, each troop commander prepares his troop for inspection as prescribed for troop inspection.

The squadron commander inspects his staff, commands: *REST,* then returns saber, and proceeds to inspect the units of his squadron in turn. The squadron staff return saber with the squadron commander, and those members designated by the squadron commander accompany him on his inspection.

Each troop commander, as the squadron commander approaches, brings his troop to *Attention,* and salutes. The squadron commander returns the salute of the troop commander, and informs him as to the kind of inspection he desires to make. The troop commander then gives the necessary commands or instruc-

tions to his troop, faces the squadron commander, and, after being inspected, accompanies the squadron commander, on the latter's right.

As the inspection of each unit is completed, the squadron commander causes it to be marched off and dismissed, or he directs it to rest until the completion of the inspection of all units.

Dismounted. The rifle squadron is not inspected dismounted as a unit. The squadron commander, accompanied by such members of his staff as he may direct, makes an inspection of each troop in turn, troops being formed and inspected as prescribed for the troop, dismounted.

CHAPTER XVI.

THE SADDLE PACK.

General Provisions. The method of packing the saddle of the cavalry trooper has a great bearing on the mobility of a command. To prevent sore backs, weight must be evenly distributed between the two sides of the saddle, and the cantle roll must set well above the horse's back. the basic saddle pack is that used by the private in the ranks of the rifle platoon. Unless otherwise stated, the pack referred to in this section is the basic saddle pack.

To Make up Components of the Pack.

Saddle-bags. The saddle-bags are packed as follows:

The *off saddle-bag* contains the toilet set and clothing; currycomb, horse brush, and grooming cloth in the patch pocket.

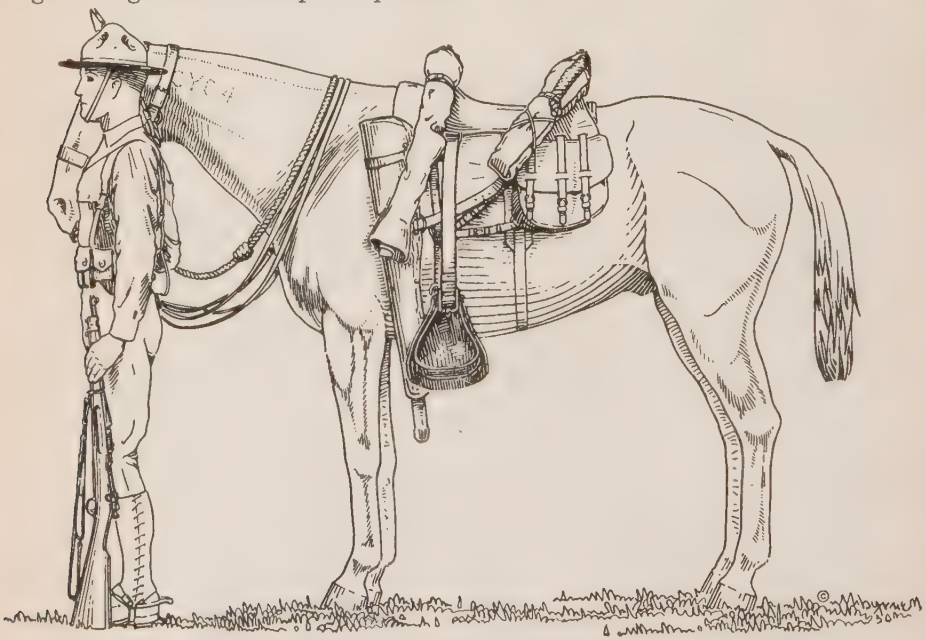


PLATE 77. **The Basic Saddle Pack, Near Side, Trooper at *Stand to Horse.***

Note. If grain is carried, the feedbag and grain bag are strapped on top of the pommel roll above the raincoat (or overcoat). If grain is not carried they are strapped under the raincoat.

The *near saddle-bag* contains the mess kit and one-day's ration; horseshoes, horseshoe nails, saddle soap, and sponge in the patch pocket. The second ration, if carried, is distributed between the two saddle-bags. Any unconsumed portion of a reserve ration will be placed in the near saddle-bag with the mess kit, other articles being shifted from one bag to the other to balance the weight of the two bags as the rations are consumed.

Cantle Roll. The cantle roll is made up as follows:

The shelter half is spread flat on the ground, buttons up, the triangular flap being folded over the shelter tent half, making the latter a rectangle. The blanket is folded once through the center, parallel to the short side, and again through the center perpendicular to the short side. The blanket is then laid on the shelter half, the longer folded edge parallel to, and one inch from, the long

side of the shelter half, opposite the buttons, the shorter folded edge towards the triangular flap, the blanket equidistant from the ends of the shelter tent half.

The tent pole, folded, is inserted into the double fold of the blanket, the end of the pole flush with the shorter folded edges, the pole parallel to, and fitting snugly into, the double fold. The tent pins are inserted into the double fold of the blanket near the loose edges, placed alternately head and point and overlapping each other, so as to occupy about the same space as the tent pole, the pins parallel to, and fitting snugly into, the double fold of the blanket. This

Plate 78. The Basic Saddle Pack, Near Side, Trooper Mounted.

See note under Plate 77.

leaves a "break" of about 14 inches at the center of the completed roll, which allows it to fit the saddle.

The free ends of the shelter tent half are then folded over the corresponding portions of the blanket. The free (loop) end of the tent rope is passed several times through the tent pin loops on the two opposite corners of the button side of the shelter tent half, stretched flat, and tied with a single bow knot, thus securing a pocket, which is obtained by folding back the button side of the roll about 6 inches when the roll is completed.

The blanket and shelter tent half are rolled tightly, from the side opposite the buttons, using the hands and knees, into the pocket at the button side, making a tightly bound roll about 42 inches in length. The roll is then "broken," or curved, to fit the cantle of the saddle, the free edge of the pocket uppermost and to the rear. It is advisable for two men to work together in making up a roll.

Pommel Roll. The pommel roll is made up as follows:

The raincoat, inside out, with collar extended, is folded once lengthwise, then rolled tightly from the folded edge toward the buttons, making the length of the roll the same as the full length of the garment.

If the *overcoat* is carried, it is rolled in the same manner as the raincoat. The raincoat and the overcoat are not both carried at the same time.

The *grain bag,* with or without grain, is secured inside the feed bag.

Lariat. One end of the lariat is doubled once in sufficient length (about two feet) to contain the remainder which is coiled around it. The coil is secured by passing the other end of the lariat through the loop formed by the coil, which is similar to a "hangman's knot."

To Pack the Saddle.

The saddle, *off the horse,* is placed on the ground, or elsewhere, as may be most convenient for packing. The saddle-bags are placed on the cantle, and

PLATE 79. **The Basic Saddle Pack, Off Side, Trooper Mounted.**

See note under Plate 77.

secured thereto by the attachments provided. They may be attached after the horse has been saddled. The snaps at the ends of the coiled *lariat* are snapped into the cantle rings. Before the cantle roll is put in place, the lariat is drawn back behind the saddle, and then swung up to its place on top of the roll when the latter is placed against the cantle. This brings the lariat snaps under the cantle roll.

The *cantle roll* and lariat are strapped to the cantle by cantle straps, which are wrapped twice around the roll, and once around both the roll and the lariat.

The straps are securely buckled and the loose ends, falling to the front, are tucked under the straps. The buckles should be far enough to the rear to prevent injury or discomfort to the trooper. The ends of the roll are pressed forward and down toward the saddle-bags. The two outside straps should pass over the roll well down toward its ends, in order to keep the roll curved to the shape of the cantle.

The *raincoat (or overcoat)* collar to the left, is strapped on the pommel by means of the pommel straps, the ends of the roll being pressed in toward the horse's shoulders. If grain is carried, the feed bag and grain bag are strapped on top of the pommel roll above the raincoat (or overcoat); if grain is not carried, they are strapped under the raincoat (or overcoat). The loose ends of the straps, falling to the rear, are tucked under the straps. All buckles should be far enough forward to prevent injury or discomfort to the trooper.

The *canteen and cup,* in their cover, are snapped to the off saddle ring. The cover is fastened tight to the saddle-bag by buckling the two rear saddle-bag cover straps over the canteen cover strap, where it passes under the bottom of the canteen cover. It may be attached after the horse is saddled.

The *rifle scabbard* is secured to the near side of the saddle, attached to the pommel ring by the upper strap of the scabbard, and to the cantle ring by the lower strap. Both straps are so adjusted that the scabbard will hang at an angle of about 15 degrees with the vertical, and so that its lower end will not interfere with the trooper's leg. The rifle is not inserted in the scabbard until after the horse is saddled, and just prior to mounting.

To Saddle with the Packed Saddle.

In saddling with the packed saddle, great care should be exercised to adjust the saddle properly. When possible, two men working together should place the packed saddle on the horse's back. In case only one man be available, he should grasp the packed saddle at the pommel with the left hand, place the right hand under the front edge of the near side bar, and swing the saddle into place on the horse's back.

When the saddle has been properly adjusted and cinched, the saber (with guard to the front) is secured to the off side of the saddle, being attached at the top to the pommel ring by one of the saber straps, which is passed through one ring of the scabbard and buckled to the pommel ring, and at the bottom, by being passed through the loop of the other saber strap, which is attached to the off cincha, or spider ring. The saber straps are so adjusted that the scabbard will hang at an angle of about 15 degrees with the vertical, and so that the lower end will not interfere with the trooper's leg.

The *surcingle* is then passed over the seat of the saddle, under the quarter straps, and buckled on the near side, loose end of the strap down, buckle just below edge of blanket.

Although not a part of the saddle pack, the first aid pouch should be worn sufficiently far forward on the belt of the trooper to avoid contact with the saddle and with the cantle roll; similarly, the pistol holster should be carried high enough, and far enough forward, to prevent injury to the saddle.

The Saddle Packs of Specialists, Machine Riflemen, Machine Gunners, and Noncommissioned Officers.

The saddle packs of specialists, machine riflemen, machine gunners, and noncommissioned officers vary from the prescribed basic saddle pack only to the extent required by differences in the equipment carried by each individual on his riding horse.

The Officer's Saddle Pack.

The officer's saddle pack consists of two parts, one carried on the saddle of his riding horse, the other on the saddle of his led horse.

The following articles are carried by the officer on the saddle of his riding horse (officer's saddle):

In the near pommel pocket. Horseshoes (fitted), horseshoe nails, saddle soap, and sponge.

In the off pommel pocket. Mess kit and flashlight.

In the cantle pocket (attached to near side of saddle). Clothing and toilet articles.

In addition, the officer carries on his riding horse, the following: *canteen*, cup and cover, snapped to near side of cantle; saber, (with knot) in saber carrier, guard to the rear, on off side of cantle; raincoat, mounted, (or overcoat), rolled, collar to the left, strapped to cantle; grain bag, in feed bag, strapped over pommel pockets.

On his led horse (McClellan saddle) the officer carries the following articles:

In patch pocket of near saddle-bag; horseshoes and horseshoe nails.

In off saddle-bag; horse brush, grooming cloth, and curry comb.

The reserve ration is distributed between the saddle-bags so as to equalize the weight thereof. The following articles are packed on the saddle in the same manner as prescribed for enlisted men (basic pack): for all officers, surcingle, lariat and strap, a pommel roll containing a grain bag rolled inside of a feed bag; for officers below the grade of major, a cantle roll containing 1 bed blanket, 2 shelter tent halves, 2 poles, 2 ropes, and 10 pins.

CHAPTER XVII.

DISPLAY OF EQUIPMENT.

General Provisions. The following method of display of equipment for all cavalry organizations is prescribed. Uniformity therein comprises one of the tests of efficiency of a command.

The basic equipment referred to in this section includes that carried on his horse by the private (in ranks) of the rifle platoon, and does not include any equipment carried on his person. The display of equipment of specialists, machine gunners, and noncommissioned officers varies from that prescribed for basic equipment of the private trooper only to the extent required by differences in the equipment carried by such individuals on their mounts. Except for the guidon, these differences are limited to the lack of a rifle or saber, or both, and to the addition of certain small articles of individual equipment. Such articles will be displayed in the most convenient manner, or as may be prescribed by the commanding officer.

Officers' equipment will be displayed when, and in a manner, prescribed by the commanding officer.

Display of Equipment, Shelter Tent Pitched.

The two occupants of a shelter tent display their equipment, each in front of his half of the tent. The terms "right," "left," "front" and "rear" refer to the directions indicated by these terms when ***Line*** is formed prior to pitching tents or displaying equipment.

Bed Blanklet. Folded once through the center, parallel to the stripes, and again through the center, perpendicular to the stripes; placed in front of tent, longerfolded edge to the front, and rear edge on line with front corner tent pin and front tent pole, stripe to the left.

Clothing. In a line along the rear edge of blanket, and in the following order, from right to left:

Drawers, folded, legs underneath, waistband to the rear, seat to the right.
Undershirt, folded, front up, neck to the rear.
Stockings, folded, feet up, each stocking displayed separately.
Handkerchief, folded.
Laces, breeches, extra pair.
Laces, leggins, extra pair.
Laces, shoe, extra pair.

Toilet Set. The towel, folded lengthwise, folded edge to the front of, and parallel to, the clothing. Other articles on top of the towel, arranged in a line in the following order, from right to left:

Razor, safety, case open.
Shaving brush, handle to the front.
Shaving soap.
Mirror.
Toothbrush, bristles up.
Tooth paste or powder.
Comb.
Hair brush.
Soap.

Mess Kit. On blanket, along folded edge, and in front of toilet set, in the following order, from right to left:

Meat can bottom, handle up and closed, hinge to the rear.

Meat can top, inside up, ring to the front.
Knife, handle to the front, edge to the right.
Fork, handle to the front, U. S. up.
Spoon, handle to the front, U. S. up.

Cup. On the left of spoon, top up, handle to the front.

Canteen. On the left of cup, top up. (The canteen cover remains on the saddle).

PLATE 80. Display of Basic Individual Equipment, Rifle-Platoon Trooper.

Saddle. Seat up pommel to the front, saddle-bags immediately in front of the front edge of the bed blanket, cincha and cincha straps, and stirrups (hoods up) crossed over seat.

Saddle-bags. Attach to saddle, spread out flat.

Lariat and Strap. Coiled, and on top of left saddle pocket.

Horse Kit. Arranged on top of the saddle-bags as follows:
Currycomb, teeth up, on top of front half of right saddle-bag.
Horse brush, bristles up, on right saddle-bag, in rear of currycomb.
Grooming cloth, folded, on top of left saddle-bag.
Extra horseshoes, on top of grooming cloth.
Extra horseshoe nails, on top of grooming cloth.
Saddle soap container, on left of horseshoes.
Sponge (for saddle soap), on left of horseshoes in front of saddle soap container.

Rifle Scabbard. Attached to saddle, parallel to long side of saddle.

Saddle Blanket. Folded, horse side in, folded edge to front, double fold to the right, across seat of saddle.

Bridle. On blanket, bits to the right, brow-band up, reins folded over headstall.

Surcingle. On rear edge of blanket, folded with buckle to the right.

Raincoat. Inside out, folded twice lengthwise and once across center, laid in front of saddle, collar to the left.

Feed Bag. On top of right half of raincoat, U. S. up, bottom to the right.

Grain Bag. On top of left half of raincoat, bottom to the left.

Saber. In scabbard, on top of feed bag and grain bag, hilt to the left, guard to the front.

Display of Equipment, Shelter Tent not Pitched.

When equipment is displayed without pitching shelter tents, the shelter tent half is laid out with triangular flap folded as previously described, the blanket is placed on the shelter half, and the equipment laid out on the blanket as described. The saddle and equipment are placed immediately in front of the shelter half. The tent poles and pins are displayed in the space between the front edge of the bed blanket and the saddlebags, the pins in a line, points to the right.

Display of Equipment on Bed or Cot.

Equipment is displayed on the bed or cot in the same manner as already described, except that the horse equipment is displayed either near the foot of the bed, or wherever saddle equipment may be regularly kept.

CHAPTER XVIII.

TO PITCH AND STRIKE SHELTER TENT CAMP.

General Provisions. The following method of pitching and striking shelter tent camp is prescribed for all cavalry units. Occasions may arise, especially in the field, where it is not practicable, or desirable, to follow exactly the provisions contained herein. In such cases, the text will be adhered to as closely as conditions warrant.

Prior to the arrival of a command at its camping place, the commander, or a staff officer designated by him, precedes the command, for the purpose of making a reconnaissance of the camp site, and assigning camping areas to each major unit. Camping areas are assigned by the division, to its brigades and corresponding subdivisions; by the brigade, to its regiments and corresponding subdivisions; by the regiment, to its squadrons and corresponding subdivisions; and by the squadron, to its troops. When the ground is suitable, and it is neither desirable nor necessary to take advantage of overhead cover, the troop habitually camps as a unit; otherwise, the troop commander assigns camping areas to each platoon and to the troop headquarters. Likewise, the platoons and troop headquarters may find it necessary, or desirable to assign camping areas to squads.

Representatives for all units the size of a troop, or larger, accompany the commander (or his designated staff officer). These representatives are informed of the location of the camp sites of their respective units, the formation in which units will camp; and, if desirable, the location of picket lines, kitchens, latrines, etc. Upon the arrival of the command, the unit representatives meet their respective organizations, guide them to their camping places, and transmit all instructions received.

Guidon sergeants are habitually sent forward as troop representatives. When the troop is to pitch shelter tent camp in one line, the guidon is erected to mark the spot where the right tent of the line will be located.

Due to their size, divisions and brigades seldom find it practicable to pitch shelter tents in a regular formation. Regiments and smaller units will frequently have sufficient room to do so. In the latter case (unless it be necessary or desirable to take advantage of overhead cover), the regiment and squadron pitch shelter tent camp in column of troops, each troop in one line. Troops and smaller units habitually pitch shelter tent camp in one line. When the regiment or squadron pitches shelter tent camp in regular formation, the units of the regiment are generally arranged, from front to rear, in the order: headquarters troop; machine gun troop; 1st squadron, 2d squadron; and rifle troops, within each squadron, in alphabetical order.

When the regiment or smaller unit pitches shelter tent camp in a regular formation, the kitchens and officers' tents are located on the right flank of the troop lines of tents, facing the troops. Each kitchen is located 20 yards from the right of its troop line of tents, the center pole of the kitchen tent fly, on a line with the front of the troopers' tents. The tents of troop officers are placed on a line, 30 yards in rear of the kitchen tent flies; the troop commander's tent on the right, and 10 yards to the right of kitchen tent fly; other troop officers' tents on the left of the troop commander's tent, in order of rank, at two yards interval. The tents of squadron commanders are located on a line 10 yards in rear of the line of troop officers' tents, each squadron commander's tent opposite the center of his squadron. The tents of the squadron staff are located on the left of, and

on a line with, the squadron commander's tent, in order of rank from right to left, at 2 yards interval. The regimental commander's tent is located 20 yards in rear of the line of tents of the squadron commanders, and opposite the center of the regiment. The tents of the commissioned regimental staff are located on the left of, and on a line with, the regimental commander's tent, in order of rank from right to left, at 2 yards interval. Other tents pertaining to regimental headquarters are located, in line, 20 yards in rear of the line of tents of the regimental commander and staff.

The troop is the largest organization which pitches shelter tent camp as a unit by formal prescribed commands.

To Pitch Shelter Tents, the Rifle Troop.

The troop commander dismounts his troop in close proximity to the place where the picket line is to be located; and directs the stable sergeant to put down the picket line, indicating, at the same time, its exact location, and whether it will be a ground or raised line. The stable sergeant, assisted by the horseshoers, saddler and farrier, then proceeds to put down the picket line.

PLATE 81. Buttoning the Shelter Tent Halves Together.

While the troop is pitching shelter tents, the troop officers remain in the vicinity of the troop camp-site, observe the work of the troop, and rectify any mistakes that may be made.

As soon as the picket line has been established, the troop commander directs the first sergeant to have the troop pitch shelter tents. The first sergeant causes the horses to be tied on the picket line, in order from right to left, as follows: rifle platoons in numerical order machine-rifle platoon, troop headquarters.

Sabers and cantle rolls are then removed from all riding animals, and pack loads from all pack animals. The pack loads are arranged, in line, approximately 8 yards from, and parallel to, the near (or rear) side of the picket line.

The troopers, carrying their rifles, machine rifles, and sabers, and with their cantle rolls over their left shoulders, are then formed in ***Line***, approximately 5 yards in front of the line where shelter tents are to be pitched. The troop is

arranged in the following order, from right to left: first sergeant's tent mate; rifle platoons, in numerical order; machine-rifle platoon; remainder of troop headquarters. In each platoon, the platoon sergeant and the sergeant file closer form on the right.

The troopers are directed to place their cantle rolls and sabers on the ground in their rear; fours are counted (the first sergeant's tent mate counting "2");

PLATE 82. Pitching the Single Shelter Tent (1).

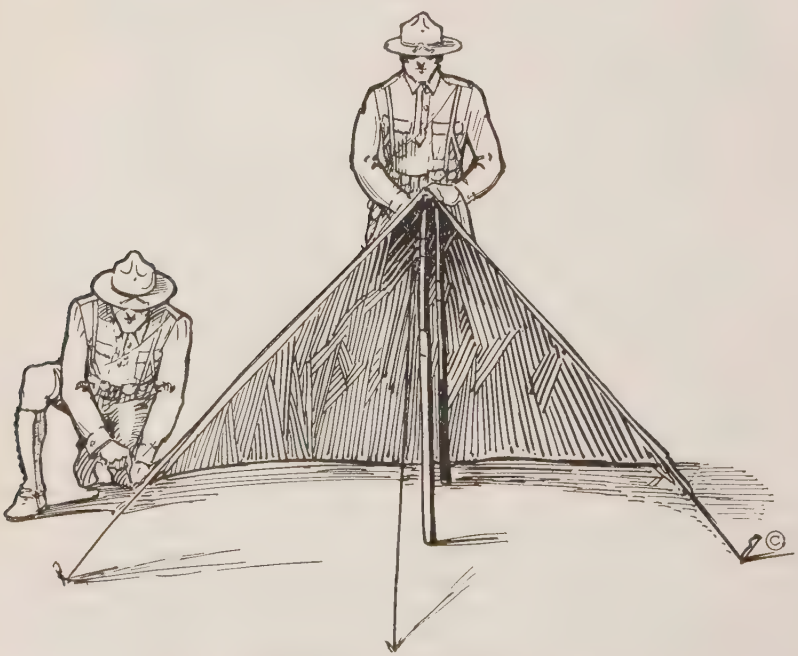


PLATE 83. Pitching the Single Shelter Tent (2).

and arms are stacked. Sabers and cantle rolls are then picked up, sabers being laid on the stacks, and cantle rolls placed over the left shoulder.

The troop is moved backward to the line (marked by the guidon) where shelter tents are to be pitched, the first sergeant's tent mate being posted abreast of the guidon, and 2 yards to its left. The first sergeant then commands: ***TAKE***

SINGLE SHELTER TENT INTERVALS. At this command the troopers secure proper intervals by moving laterally to the left while aligning themselves to the right, until each trooper, with his arms raised horizontally sideward, can just touch with the finger tips of his right hand, the finger tips of the trooper on his right.

When intervals have been gained, the first sergeant commands: ***EVEN NUMBERS PLANT TENT PINS.*** At this command each even numbered trooper, except the first sergeant's tent mate, secures a tent pin from his roll, and sticks it into the ground between the heels of the odd numbered trooper on his right. (The first sergeant's tent mate does not plant a pin, as the position of his tent is marked by the guidon. Each pin thus planted marks the position of a front tent pole.

When tent pins have been planted, the command: ***PITCH SHELTER TENTS*** is given. At this command each trooper unrolls his roll, and tents are pitched in the following manner: In each set of fours, Nos. 1 and 2, and Nos. 3 and 4 respectively pitch together. The troopers of each set of twos spread their shelter halves on the ground, side by side, triangular flaps to the rear, the odd numbered trooper's shelter half on the right, and button the long sides together. (See Plate 81.) Each odd numbered trooper inserts the iron pin of his tent pole in the brass eyelets at the front of the tent, and holds the pole in a vertical position with its lower end touching the planted tent pin. Each even numbered trooper now drives the right front corner pin, taking care to stretch the front edge of the shelter half, while the pole is being held vertical, and to locate this pin exactly on the line of planted pins. This same trooper then drives, in similar manner, the left front pin; (see Plate 82.) then the front tent rope pin, locating it accurately in front of the pole. (To insure a uniform slope of all tent ropes, they should be of the same length, i. e., 65 inches.) Each even numbered trooper next inserts the iron pin of his tent pole in the brass eyelets at the rear edge of the tent, and places the pole in a vertical position, so as to square the tent and stretch both sides evenly. Each odd numbered trooper now drives the rear tent pins; in the following order: right rear corner, (see Plate 83.) left rear corner, rear of triangular flaps (after buttoning these flaps together), and finally, the rear tent rope pin. Before driving these pins care should be taken to so locate them that the canvas is evenly stretched. Each trooper now drives the center pin on his own side of the tent.

In lieu of the above method, a cord or tape may be employed to mark the line of tents. This cord or tape is marked at 9 foot intervals to indicate the positions of front tent poles.

The troop transportation, facing in the same direction as the troopers' tents, is parked 10 yards from the left (far) end of the picket line, front axles on line with the picket line, with 10 yards interval between vehicles. Draft animals are tied to the wheels of their respective wagons.

During the pitching of tents, the first sergeant, while exercising general supervision over the troop, renders such assistance to his tent mate as is necessary.

To Pitch Double Shelter Tents, the Rifle Troop.

Double shelter tents are pitched in the same general manner as prescribed for single shelter tents, with the following exceptions:

To secure intervals for pitching tents the first sergeant commands: ***TAKE DOUBLE SHELTER TENT INTERVALS.*** Proper intervals are secured by each trooper extending his right arm horizontally sideward, and taking position in the line so that the finger tips of the right hand just touch the left shoulder of the trooper on his right.

Before aligning the troop for pitching tents, the first sergeant posts his tent mate 1 yard to the left, and abreast of the guidon.

Within each four, No. 1 marks the position of the front tent pole. For this

purpose the first sergeant commands: ***NUMBERS TWO PLANT TENT PINS.***

In this case, when the troop is ready to pitch tents, the command is: ***PITCH DOUBLE SHELTER TENTS.***

One tent is pitched by each set of fours, and consists of two single tents (less one pole) buttoned together along the front, or square ends. Two tent ropes are used at each end of the tent, secured by pins placed in front of the corner tent pins. Within each four, the procedure is as follows: all troopers spread their shelter halves on the ground, those of Nos. 1 and 2 with the triangular flaps to the front, those of Nos. 3 and 4 with the triangular flaps to the rear. All four shelter halves are then buttoned together, the ridges first, then the square ends. Nos. 1 and 2 erect the front half of the tent, No. 1 holding the pole, and No. 2 driving the pins. In a similar manner, Nos. 3 and 4 erect the rear half. When the two ends have been erected, Nos. 1 and 3 steady the front and rear poles respectively, while No. 2 places the center pole in position. To accomplish this, No. 2 enters the tent with his pole, and assisted by No. 4, adjusts the brass eyelets of the shelter halves on the iron stud of the pole, in the following order; lower front, lower rear, upper front, upper rear. After erecting the center pole, the tent rope pins are driven into the ground.

Procedure After Pitching Tents, the Rifle Troop.

After tents have been pitched, the troopers place the contents of their cantle rolls in their respective tents; and the stable sergeant straps the guidon to the front center pole of the troop commander's tent.

The first sergeant then forms the troop in rear of the stacks, causes stacks to be broken, and rifles and sabers to be placed in the tents.

All animals are then unsaddled, and equipment and animals cared for. Pack saddles and loads are placed in line, 8 yards from, and on the near (or rear) side of the picket line, directly in rear of the animals to which they pertain. Individual horse equipment is arranged in line, in front of tents, pommels of saddles to the front, and on line with the front tent rope pins. All other equipment is removed to shelter tents.

To Strike Shelter Tents.

The troop commander directs the first sergeant as to when and how the troop will strike shelter tents. The troop officers remain in the vicinity of the troop camp site while tents are being taken down, observe the work, correct mistakes, etc.

The troopers may be permitted to strike shelter tents individually. This is a convenient method in the field, where, for example, each pair of troopers may be permitted to take down their tent and make up their cantle rolls as soon as they have finished breakfast

When the troop is to strike shelter tents as a unit, the first sergeant forms the troopers in front of their tents, and commands: 1. ***Strike,*** 2. ***SHELTER TENTS.*** At the first command; each odd numbered trooper removes the front tent rope pin and the left front corner pin, and holds the front pole upright; and each even numbered trooper removes the center pin on th left side, the left rear pin, the rear tent rope pin, and the triangular flap pin (in that order), and holds the rear pole upright. All troopers then stand facing the guidon, and, at the second command, lower tents toward the guidon.

If double shelter tents have been pitched, at the command ***Strike,*** Nos. 1 and 3 hold the front and rear poles upright, while Nos. 2 and 4 remove the pins at the front, rear, and left side of the tent.

When *The General* is sounded, all troopers execute, at the first note of the call, the movements prescribed to be executed at the command ***Strike.*** At the end of the last note of the call, tents are lowered toward the guidon.

Procedure After Striking Shelter Tents.

After striking shelter tents, each trooper makes up his cantle roll, secures it to his saddle, and carries his arms and equipment to the picket line. Here, he places his arms and equipment on the ground, approximately 8 yards in rear of his horse, and awaits orders to saddle.

At the sounding of *Boots and Saddles,* or at the first sergeant's order to saddle, each trooper saddles his horse. Unless charged with some duty in connection with pack animals, each trooper, as soon as he has saddled his horse, leads him to the place indicated for the troop to form. Troopers charged with the care, saddling, or packing of pack animals first saddle their own mounts; then, leaving their own mounts tied to the picket line, they saddle and pack their pack animals. As soon as each pack animal has been saddled and packed, it is turned over to the trooper designated to lead it. This trooper then secures his own mount, and proceeds to the place designated for the troop to form.

After all horses have been removed from the picket line, the first sergeant directs the stable sergeant to take up the picket line. The stable sergeant, assisted by the horseshoers, saddler and farrier, then take up and pack the picket line.

EQUITATION

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EQUITATION

Introduction.

Instruction in equitation has as its object the training of the student in riding.

A good military horseman is one who knows how to ride a well-trained horse, to train a young horse, to ride a difficult, high-spirited horse, to ride and to reclaim a spoiled horse, to judge the quality and suitability of horses, and who is able successfully to care for animals and equipment both in garrison and in the field.

Accordingly, to enable the student to become a good military horseman, he should be instructed in the two general subjects of *riding* and *horse training*. The object of this course is to prescribe the means and methods whereby the mounted soldier is trained, in a minimum time, to ride sufficiently well for participation in field service.

When quiet, well-trained horses are available, they should be used for the initial instruction in equitation.

Physical Fitness of Riders. Riding requires the use of many muscles. Overwork of these muscles produces stiffness and soreness, causing muscular contraction, whereas progress in equitation is dependent upon the contrary condition—relaxation. For these reasons, it is essential not to overtax physical strength of the beginner. In the beginning the work should be mainly at the walk, punctuated by frequent short rest periods. As the novice develops in physical fitness, the trot and gallop periods are gradually extended and the number of rest periods decreased.

Confidence. The man who has never ridden a horse is often filled with apprehension due to the unaccustomed motion, and the difficulty of controlling his horse, especially at the faster gaits. This apprehension causes him to become anxious and overstrained mentally, his muscles to become taut, and his body so rigid as to be incapable of doing its part easily and efficiently. It is necessary, therefore, that particular attention be given to combating this nervous tendency. Confidence must be gained and held from beginning to end. To accomplish this, instruction should proceed gradually from that which has been mastered to that which is new and more advanced.

Standard Required of Trooper. Upon completion of the training outlined hereafter each student should have attained a reasonably secure seat at all gaits, and, in addition, should be able:

To mount and dismount with ease.

To apply correctly the aids whereby the horse is caused to move forward or increase his gait; to halt or decrease his gait; to turn to the right or left, or turn to the right or left about; and to back from the halt.

To cover long distances on horseback with the least possible fatigue to the horse and rider.

To jump obstacles.

To ride across country.

Division of the Course.

For convenience this course in Equitation is divided into five periods of progressive instruction.

CHAPTER I.

FIRST PERIOD.

Program of Instruction. During the first period the horses are equipped with stripped saddles and single snaffle single rein bridles. The men invariably ride with stirrups and without spurs.

The first 45 minutes of each lesson should be conducted in a riding hall. Any remaining time should be spent out of doors in quiet work on the road or in some appropriate phase of cross-country riding.

For the first three or four days the instructor should so conduct the work that not more than half the lesson period is devoted to actual riding, the remainder of the period being confined to explanations, saddling and bridling, mounting and dismounting, adjusting and handling reins, etc.

The term riding hall, as used herein, includes any inclosed or uninclosed course of corresponding size and shape.

Until they have become reasonably proficient in riding, the men are required to lead their horses to and from the riding hall.

ADJUSTMENT AND FITTING OF EQUIPMENT.

Attention to the Fitting of Bits and Saddles. The proper fitting of bits and saddles should receive systematic, continuous attention. There is no phase of horsemanship more important to the service than a knowledge of the ordinary measures for the prevention of sore backs. Both thorough knowledge of the habitual conscientious attention to this subject are indispensable to the efficiency of a mounted organization.

To Fold the Saddle Blanket. The blanket, after being well shaken out, should be folded into six thicknesses, as follows:

Hold it up by two corners, so that the long edge of the blanket is up and down.

Double it lengthwise (so the fold will come between the "U" and "S"), the folded corner between the thumb and forefinger of the right hand, thumb pointing to the left.

Slip the left hand down the folded edge two-thirds its length and seize it with the thumb and second finger.

Raise the hands to the height of the shoulders, the blanket extended between them.

Bring the hands together, the double fold falling outward.

Pass the folded corner from the right hand into the left hand, between the thumb and forefinger.

Slip the second finger of the right hand between the folds and seize the double-folded corners.

Turn the left (disengaged), corner in and seize it with the thumb and forefinger of the right hand, the second finger of the right hand stretching and evening the folds.

After evening the folds grasp the corners and shake the blanket well in order to smooth the folds.

Raise the blanket and hold it between the chin and breast.

Slip the hands halfway down the blanket, the first two-fingers outside, the other fingers and thumb of each hand inside.

Seize the blanket with the thumbs and first two fingers of each hand and let the part under the chin fall forward.

Hold the blanket up, arms extended, and even the lower edges

Seize the middle points of the blanket between the thumb and forefinger of each and flirt the outside part over the right arm.

Hold the blanket thus until ready to place it on the horse.

The Saddle.

To Saddle (McClellan Saddle). For instruction the saddle may be placed 4

PLATE 1. To Fold the Saddle Blanket.

yards in rear of the horse, the stirrups crossed over the seat, the right one uppermost; the cincha and cincha strap crossed above the stirrups, the strap uppermost; the saddle blanket folded, horse side in, folded edge to the front, double fold to the right, across the seat of the saddle.

The instructor commands: ***BLANKET.*** Approach the horse on the near

PLATE 2. To Saddle, McClellan Saddle.

(left) side, with the blanket folded and held as described above. Place the blanket well forward on the horse's back by tossing the part of the blanket over the right arm to the off (right) side of the horse, still keeping hold of the middle points. Slide the blanket once or twice from front to rear to smooth the hair on the horse's back, being careful to raise the blanket in bringing it forward. Put the blanket in place, the edges falling equally on either side of the backbone, the double fold resting on the withers. Smooth the blanket and remove the locks of mane that may be under it.

The blanket having been placed on the horse, the instructor commands: ***SADDLE.***

Seize the pommel of the saddle with the left hand and the cantle with the right.

Approach the horse on the near side from the direction of the croup and place the center of the saddle on the middle of the horse's back, the front end of the side bar about 3 fingerwidths behind the point of the shoulder blade and about the width of a man's hand in rear of the double-folded edge of the blanket.

Let down the cincha strap and cincha.

Pass to the off side, adjust the cincha and strap, and see that the blanket is smooth.

Return to the near side and raise the blanket slightly under the pommel arch so that the withers may not be compressed.

Take the cincha strap in the right hand, reach under the horse and seize the cincha ring with the left hand.

Pass the end of the strap through the ring from underneath (from inside to outside), then up and through the upper ring from the outside; if necessary, make another fold in the same manner.

Cincha strap. The cincha strap is fastened as follows: Pass the end through the upper ring to the front and seize it with the left hand.

Place the fingers of the right hand between the outside folds of the strap and, pulling from the horse with the right hand take up the slack with the left hand.

Cross the strap over the folds and, with the right hand, pass the end of it underneath and through the upper ring back of the folds, then down and under the loop that crosses the folds and draw it tight.

Weave the end into the folds of the cincha strap.

Another method of fastening the cincha strap is as follows: Pass the end through the upper ring to the rear and seize it with the right hand. Place the fingers of the left hand between the outer folds of the strap. Pull from the horse with the left hand and take up the slack with the right hand. Pass the end of the strap underneath and draw it through the upper ring until a loop is formed. Double the loose end of the strap, push it through the loop, and draw the loop taut. The free end of the strap should be long enough to be seized conveniently with the hand.

The cincha strap, when first adjusted, should admit a finger between it and the horse's belly. After exercising the horse for a while the cincha should be examined; if too loose, it should be readjusted.

Having fastened the cincha strap, let down the right stirrup, then the left.

The surcingle is then buckled over the saddle, and should be a little looser than the cincha.

Breast straps. A breast strap is not usually required. When used it should be so fitted that the upper edge of the rosette, or ring, is 3 fingerbreadths above the sharp breastbone. The breast strap should admit the breadth of the hand between it and the flat of the shoulder.

Quarter straps. After placing the saddle in the middle of the horse's back the quarter-strap ring should be pushed forward and fixed by the sliding loops so that when tightened the cincha will be over the sternum of the horse and not over

his floating ribs. If the sliding loops become loose, it will be well to fix the quarter-strap ring in place by the use of a short thong or by putting a rivet through the quarter strap in rear of the quarter-strap ring.

The quarter strap should be adjusted to such a length that the quarter-strap ring is over the lower edge of the blanket. The buckle of the quarter strap should be against the cantle-halter square.

Stirrup straps. The stirrup strap should be put on the saddle so that the hair side of the leather encircles the stirrup loop on saddle and the spreader of the stirrup. This leaves the flesh side of the leather out. The buckle of the stirrup strap should be inside, and at the front of the stirrup, and against it, so that under no circumstances can it touch the gun boot, the blanket, or the saber.

To Unsaddle (McClellan Saddle). The instructor commands: ***UNSADDLE.***

Stand on the near side of the horse and unbuckle and remove the surcingle.

Cross the left stirrup over the saddle and loosen the cincha strap and let down the cincha.

Pass to the offside and cross the right stirrup, then the cincha.

Pass to the near side and cross the cincha strap over the saddle.

Grasp the pommel with the left hand, the cantle with the right hand, and, removing the saddle over the croup, place it in rear of the horse, pommel to the front.

Grasp the blanket at the withers with the left hand and at the loin with the right hand.

Remove it in the direction of the croup, the edges falling together, the wet side in.

Place the blanket on the saddle, the folded edge on the pommel.

If unsaddling in the stable, place the saddle on its peg when taken off the horse.

To Fit the Saddle. The following principles are of general application in saddle fitting:

The withers must not be pinched nor pressed upon.

The central line of the back must have no pressure put upon it.

The shoulder blades must have free and unhampered movement.

The weight must be evenly distributed over a surface which extends from the play of the shoulders to the last true rib.

To Balance the Saddle Weight. The exact balance of the weight of the saddle is of so much importance that all concerned must understand how serious may be the least variation. Riders will be required to maintain the seat described in the position of attention mounted regulations.

Excessive local pressure caused by the faulty position assumed by the rider is irregular and intermittent. It is not nearly so productive of evil as the pressure due to an uneven distribution of arms and pack, the effects of which are permanent and constant. Accordingly, the weight of such articles as are attached to one side of the pommel and cantle should be exactly balanced by the weight of those of the opposite side. The weight of the pack on the pommel should also equal that placed on the cantle. Furthermore, this relation must be maintained throughout the vicissitudes of field service which are sure to produce changes in the weight carried on the saddle.

To Adjust the Length of Stirrup Straps. To approximate the correct length of stirrups straps, before mounting, they are adjusted so that the length of the stirrup strap, including the stirrup, is about 1 inch less than the length of the arm, the fingers extended.

The Bridle.

To Put On the Single-Snaffle Bridle. The instructor commands: ***BRIDLE.***

Take the reins in the right hand, the crownpiece in the left hand.

Approach the horse on the near side, passing the right hand along his neck.

Slip the reins over the horse's head and let them rest on his neck.

Take the crownpiece in the right hand and the snaffle bit in the left hand.

Bring the crownpiece in front of and slightly below its proper position.

Insert the thumb into the side of the horse's mouth, above the tusk, and press upon the lower jaw so as to cause him to open his mouth.

Insert the bit by raising the crownpiece and, with the left hand, quietly draw the ears under the crownpiece and arrange the forelock.

Secure the throatlatch.

The bridle should be adjusted so that the snaffle bit will touch lightly the upper corners of the lips and so that the throatlatch will admit 4 fingerbreadths between it and the throat.

At the direction of the instructor the halter may be taken off before bridling, the reins being first passed over the horse's neck.

PLATE 3. To Put on the Single-Snaffle Bridle.

A noseband, when used, should be 2 fingerbreadths below the cheek bone and should admit 2 fingerbreadths between it and the nose.

To Take Off the Single-Snaffle Bridle. The instructor commands: ***UNBRIDLE.***

Stand on the near side of the horse and pass the reins over the horse's head, placing them on the bend of the left arm.

Unbuckle the throatlatch.

Grasp the crownpiece with the right hand and, assisting with the left hand, quietly disengage the ears.

Lower the crownpiece with the right hand and gently remove the bit from the horse's mouth with the left hand.

Place the crownpiece in the palm of the left hand and, taking the reins in the right hand, pass them over the crownpiece.

The bridle is placed across the saddle on the blanket.

If unsaddling in the stable the bridle is hung on its peg by the crownpiece.

If the horse is not equipped with a halter, unbridle and push the bridle back so that the crownpiece will rest on the neck behind the poll. The horse may be held thus until a halter is put on, after which the bridle should be removed.

To Put On the Bit and Bridoon. The bit and bridoon is put on by the same command and by essentially the same movements as prescribed for the single-snaffle bridle.

Variations in procedure for the two types of bridles are as follows: Before bridling, the curb chain is unhooked on the near side; after placing the reins over the horse's head the lower left branch of the curb bit is held in the left hand, the forefinger against the mouthpiece, the snaffle bit above and resting on the mouthpiece of the curb bit.

After the throatlatch has been secured the curb chain is hooked up on the near side below the snaffle bit.

To Adjust the Bit and Bridoon. The bits should be of sufficient width to fit the horse's mouth, the branches of the curb touching lightly the outer surfaces of the lips.

The snaffle should touch lightly the upper corners of the lips.

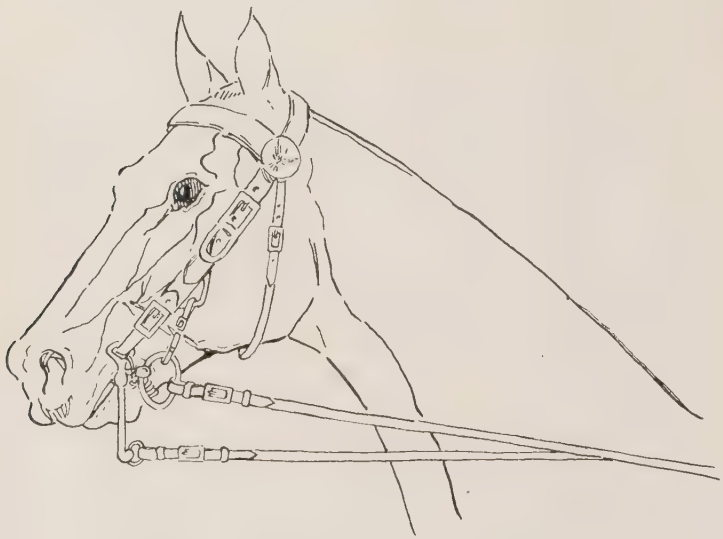


PLATE 4. Adjustment of the Bit and Bridoon.

The curb should rest just below the snaffle.

The curb chain should lie flat in the chin groove and be of such length as to cause the reins, when stretched from the pommel of the saddle, to form a right angle with the branches of the curb.

If the bit is placed high it is less severe; if placed low it is very powerful; if placed too low its effects are painful. It should not be placed so low as to strike the teeth.

When the horses are restive it is often due solely to faulty adjustment of the bits and the curb chain.

The noseband is adjusted as described above. If tightened it renders the effect of the bits much more pronounced. If too much lowered and tightened it will make the effect of the curb bit too severe. With the bit and bridoon the adjustment of the noseband requires the strictest attention.

To Take Off the Bit and Bridoon. The procedure is the same as prescribed above for the single-snaffle bridle with the following modification: After passing the reins over the horse's head the curb chain is unhooked on the near side.

To Put On the Cavesson and to Fold and Handle the Longe.

The cavesson consist of a strong bridle headstall, to which is attached a heavily padded noseband. The cavesson (with the longe) is used for exercising, training and disciplining horses, especially young horses.

The headstall consists of a crownpiece, brow band, cheek pieces, throatlatch,

and jowl strap. Except for the addition of the jowl strap, it is like the headstall of the ordinary bridle.

The noseband is metal jointed and is lined inside with thick felt. On the noseband are three rings, to one of which the longe is attached, usually to the ring in the center.

The longe consist of a flat tape of strong material or a stout rope. It should be about 30 feet long.

The cavesson should be adjusted so that the noseband rests just below the cheek bones. The more the noseband is lowered below its normal position the more severe it becomes. If placed very low the noseband is unduly severe. Moreover, it is apt to injure the sensitive cartilage of the nose and to hinder breathing.

The noseband should be buckled snugly under the lower jaw. To allow play to the metal portion of the noseband makes its effect severe; if very much play is allowed its effect on the nose will be painful.

The jowl strap should be lightly adjusted in order to assure that the cheek piece on the outside does not injure the horse's eye.

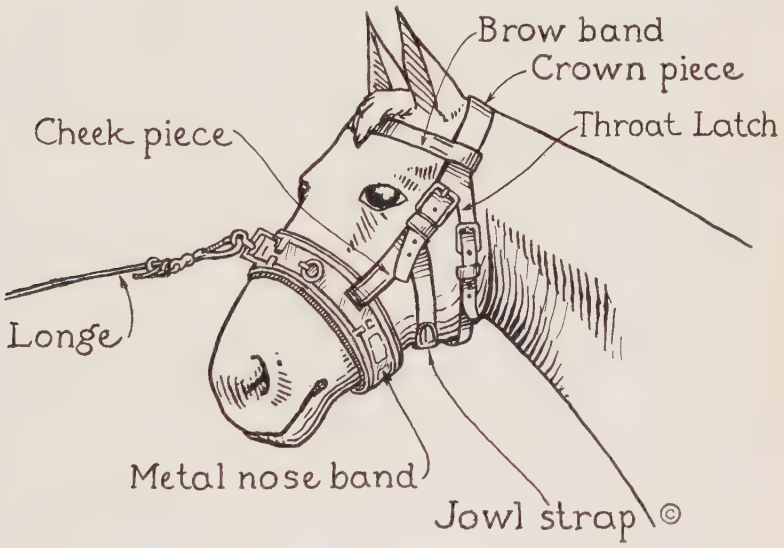


PLATE 5. The Cavesson.

If the longe is held in the hand in circular loops it is apt to become entangled in the fingers or burn the hand when paid out rapidly. It should therefore be held in successive super-imposed loops, somewhat like figures of 8.

All troopers should know how to put on a cavesson and how to fold and handle a longe. They should also be able to exercise a horse on the longe.

Care of Equipment.

Care of Saddle Blankets. Saddle blankets should be kept clean, soft, and free from wrinkles, and should be refolded so that the side next to the horse will be changed frequently. Occasionally they should be hung in the sun and wind and then brushed and shaken. When necessary, they should be thoroughly cleaned by repeated immersions in tepid water and then, without wringing or pressing, hung over a pole or line to dry. Before folding saddle blankets to put them in storerooms after use, they should be dried thoroughly and cleaned, if necessary, and so stored as to prevent deterioration.

Care of Saddlery. The care of saddlery is important and officers and noncom-

missioned officers will be thoroughly familiar with the methods involved. All men will receive instruction in this subject. Cleaning will be done habitually under proper supervision.

Cleaning materials. Castile soap (or white soap), saddle soap, and neat's-foot oil are the authorized cleaning and preserving materials. Castile soap (or white soap) is a cleaning agent and has no tendency to soften and preserve leather. Neat's-foot oil is an oiling agent only. Saddle soap combines both cleaning and oiling properties.

Frequency and methods of cleaning. As often as used leather equipment should be wiped off with a sponge slightly dampened in water to remove mud, dust, or other foreign substances. This maintains the appearance of saddlery, but is, however, insufficient of itself to preserve it. Bits and other metal should be wiped off with a rag moistened with oil.

At intervals of from one to four weeks, depending upon climatic conditions and the use to which it has been subjected, it is essential that leather equipment be thoroughly cleaned. To do this properly all parts of the equipment should be separated and the entire equipment reduced to its simplest elements. All surface dust and mud should be wiped off with a damp sponge. Then, with the sponge slightly damp, a lather is formed of castile soap and thoroughly worked into each piece of leather. After the leather parts are clean the sponge is rinsed out and a thick lather made from saddle soap. This is applied to the parts of the equipment to obtain a fine surface dressing and to restore the oil removed by the castile soap. Finally, when partially dry, the equipment is rubbed with a soft cloth to give it a finished appearance.

Frequency and method of oiling. During the first few months of use a set of new leather equipment should be given at least two applications of neat's-foot oil per month. Thereafter the frequency of oiling is a matter of judgment, as indicated by the appearance and pliability of the leather. Frequent light applications of oil are more valuable than occasional heavy ones.

As far as practicable, the oil should be applied on the flesh side. Leather which has been cleaned should still be damp at the time of oiling. New leather should be slightly moistened and the oil quickly and lightly applied. A small rag may be used to apply the oil, care being exercised not to use an excess. The tendency is to use too much oil; about 1 ounce to a set of saddlery is sufficient.

Metal parts. The bit, curb chain, and spurs may be polished. Dark metal should be cleaned and oiled only, and should never be attacked with abrasive agents.

Care of Equipment in the Field. In active campaign or on the march advantage should be taken of such oportunities as the situation affords to keep equipment out of the mud and to protect it from rain, dust, and heat. Racks can be improvised from materials at hand. A piece of canvas thrown over the equipment affords considerable protection. In cases where shelter is provided for animals provisions should also be made for horse equipment. The saddle must not be thrown about nor left where animals may step upon it.

CHAPTER II.

FIRST PERIOD (Continued).

MOUNTED INSTRUCTION.

To Stand to Horse. At the command ***STAND TO HORSE*** each man places himself on the near side of the horse, facing to the front and opposite the horse's head. He takes the position of attention, except that the right hand (nails down) grasps the reins about 6 inches from the bit, the forefinger separating the reins. The bight of the reins rests on the horse's neck near the withers.

Being at ***Stand to horse*** if the command ***AT EASE*** be given each man stands at ease, holding the reins about 18 inches from the bit.

At the command ***ATTENTION*** each resumes the position of ***Stand to Horse.***

To stand to horse on the off side the instructor commands: ***OFF SIDE, STAND TO HORSE.*** At this command each man assumes a position on the off side of his horse corresponding to the position of ***Stand to horse,*** as described above, substituting right for left, and vice versa.

To Lead Out. The students being at ***Stand to horse,*** to leave the stable or picket line, the instructor commands: ***LEAD OUT.*** Each man, holding his right hand well up and firm, leads his horse, without looking at him, to the place designated by the instructor.

To Line Up (In the Riding Hall). As the students enter the riding hall the instructor indicates the point where he desires the right man to be located and the direction in which the line is to face and commands: ***LINE UP.*** The students form in line at intervals of 3 yards, dressing on the right man, each at ***Stand to horse,*** and with horse correctly disposed perpendicular to the line.

To Mount and to Dismount.

To Mount. The student being at ***Stand to horse*** the instructor commands: 1. ***Prepare to mount,*** 2. ***MOUNT.***

At the command ***Prepare to mount*** the student faces to the right, drops the right rein, takes a step to the right so as to be opposite the horse's left shoulder, and then half faces to the rear. He takes the reins in the left hand, with the little finger between them and the bight falling to the off side; adjusts them so that they give a gentle, even bearing on the horse's mouth, and places the left hand on the horse's crest near the withers. He then places the left foot in the stirrup, assisted by the right hand, if necessary, brings the left knee against the saddle, and places the right hand upon the cantle.

At the command ***MOUNT*** the student rises by an effort of the right leg aided by the arms. He keeps the left knee bent and firmly pressed against the saddle, the toe depressed, and the upper part of the body inclined slightly forward in order to keep the saddle from turning. He brings the right foot by the side of the left, changes the right hand to the pommel, passes the right leg, knee bent, over the horse's croup without touching it, and sits down lightly in the saddle. Assisted by the right hand, if necessary, he then places the right foot in the stirrup and takes the reins in one or both hands as instructed.

To Dismount. The students being at the halt, the instructor commands: 1. ***Prepare to dismount,*** 2. ***DISMOUNT.***

At the command ***Prepare to dismount*** the student passes the reins into his left hand and places that hand on the horse's crest near the withers. He then places the right hand upon the pommel and removes the right foot from the stirrup.

At the command ***DISMOUNT*** the student passes the right leg, knee bent, over

the croup without touching it. He now changes the right hand to the cantle of the saddle and brings the right foot by the side of the left foot, the left knee being against the saddle and the upper part of the body inclined slightly for-

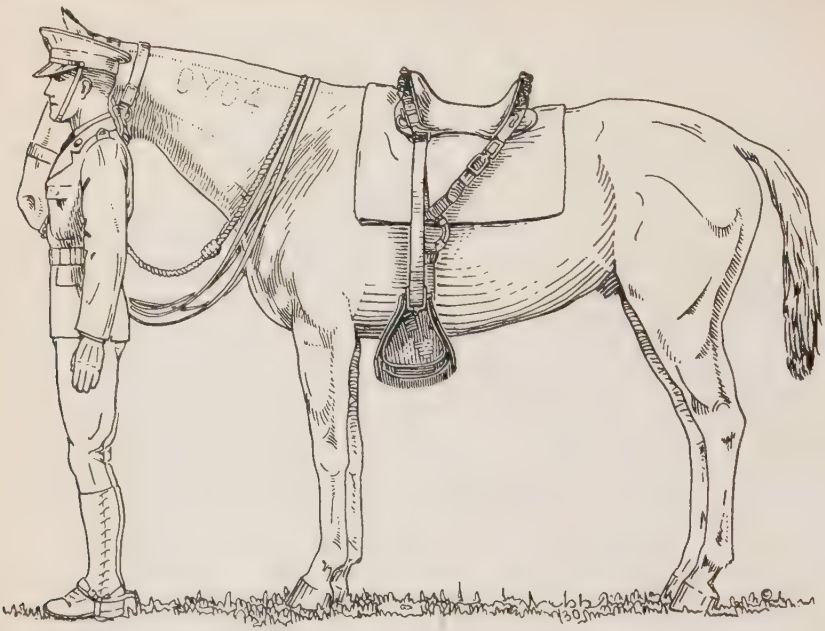


PLATE 6. To Stand to Horse.

ward. He next descends lightly on the right foot, which is followed by the left, and takes the position of *Stand to horse.*

To Hold the Single Reins.

To Hold the Single Reins in Both Hands. The student takes a rein in each hand in such manner that the rein comes into the hand under the little finger and passes out over the second joint of the forefinger. The thumb is closed on the rein and the bight of the reins falls forward and to the right. The fingers are closed until their tips lightly touch the palms of the hands. The back of

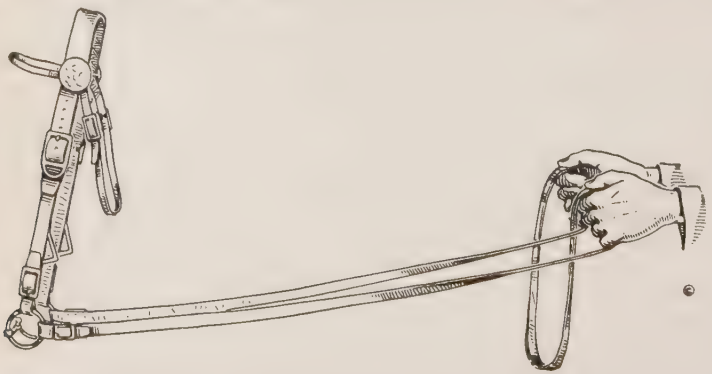


PLATE 7. To Hold the Single Reins in Both Hands.

each hand is vertical and in prolongation of the forearm. The elbows are low and close to the body. Each forearm, wrist, hand, and rein is in a straight line. The wrists are not contracted nor bent. The hands are about 9 inches apart and remain light, i. e., they maintain a light feel of the horse's mouth, following the

vibration of the horse's head by means of an elastic play of the fingers and wrist. The reins are stretched sufficiently to maintain a light contact with the horse's mouth.

To shorten the length of the rein the student brings the hands together and grasps with the fingers of one hand, above and near the opposite thumb, the rein he desires to shorten. To lengthen a rein he relaxes the grasp of his hand upon the rein, thus permitting the rein to slide through his hand until the desired length of rein is secured.

To Hold the Single Reins in One Hand. The reins being held in both hands, to take the reins in the left hand, the student carries the left hand opposite the middle of the body, passes the right rein into the left hand so that it is separated from the left rein by the little finger. The two reins pass out of the left hand over the second joint of the forefinger, the thumb is closed on the reins, and the bight falls forward and to the right. The student's right arm falls naturally by his side. His left elbow is carried naturally by his side and his left wrist and

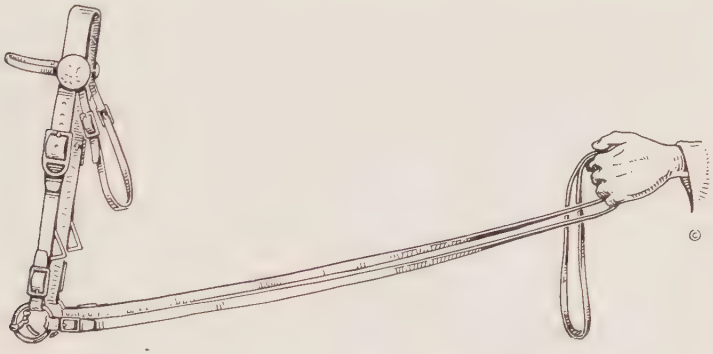


PLATE 8. To Hold the Single Reins in One Hand.

hand are in line with his forearm. The fingers are closed lightly, nails toward the body, and the back of the hand vertical.

To retake the reins in both hands the student grasps the right rein with the right hand as before and replaces the hands about 9 inches apart.

The student takes the reins in the right hand and again in both hands, in a similar manner.

To Adjust and Handle the Single Reins. During the first lessons in riding, the instructor causes the students to hold the reins in both hands. After a few days, however, he commences to require them to hold the reins in the left hand and, similarly, in the right hand. He practices them in changing the reins from one hand to another, from both hands to one hand and back again, in lengthening and shortening the reins, in dropping and picking up the reins, and explains thoroughly the positions of the hands and the proper length at which to hold the reins.

It should not be forgotten that riding with the reins in both hands is a temporary measure for the better control of the horse; that to hold the reins in the right hand is merely a restful change; and that to hold the reins in the left hand is the normal method for the military horseman, the right hand then being free for the use of weapons. Therefore, while the student should be made proficient in all methods of holding the reins, he should, as the course of instruction progresses, come to ride more and more with the reins in the left hand.

The Position of the Mounted Soldier, or Attention, Mounted.

The following is a description of the position of the mounted soldier, or attention mounted:

The buttocks should be well forward underneath the rider and bear an equal amount of his weight. The buttocks should never be permitted to bear against the cantle.

The thighs should extend downward and slightly forward. They should rest

PLATE 9. The Trooper Mounted, Near Side.

without constraint upon their flat sides and clasp the horse evenly.

The knees should be bent, but without stiffness, and should clasp the horse snugly.

The lower legs should extend downward and slightly backward; they should be in contact with the horse, but without pressure.

The ball of the foot should rest easily on the tread of the stirrup, the heel slightly lower than the toe, the ankle relaxed.

If the rider is without stirrups, the feet should hang naturally, ankles relaxed.

The upper part of the body should be easy, free, and erect. The spinal column should be supple, especially in the small of the back.

The shoulders should be carried back evenly, but without hollowing or stiffening the back.

The arms should be free, the elbows falling naturally by the side.

The reins should be held in one or both hands, in the prescribed manner.

The head should be erect, but without stiffness in the neck.

The eyes should be alert and glancing well to the front.

A position fulfilling the above requirements is considered ideal for the military horseman. It is easy and comfortable to both man and horse—a consideration of the highest importance in the prevention of sore backs; it permits the efficient use of the aids in the control of the horse, and it affords a secure seat from which the rider is not easily thrown.

The position given is a model to which a well-formed man whose body is suitably proportioned for riding can approximately conform. Others whose legs are round and short or whose bodies are square and thickset can only be expected to adjust themselves as far as possible to the normal position without rendering themselves too uncomfortable or causing themselves undue fatigue or

PLATE 10. The Trooper Mounted, Off Side.

pain. Moreover, many men have become excellent horsemen whose positions are not and could not be absolutely according to model. Often such men possess other and more important qualifications as horsemen. All men, however, no matter what their natural aptitudes or degrees of proficiency, are greatly improved in their riding by conscientious efforts to conform to the model position described.

The instructor should not demand at once a correct position on horseback. To the beginner the new experiences and sensations are sometimes very fatiguing and discouraging. Even to an experienced rider a suddenly enforced change from old and confirmed habits and positions to new ones is especially trying upon strength, patience, and good temper. The instructor should, therefore, describe the correct seat, hold to it steadfastly as the goal the men are to strive for, but seek to attain it by minor and well-timed corrections and by gradual daily improvement. In this the instructor will be greatly assisted and his men

will make rapid progress if he applies the mounted *Supplying exercises* in a manner to eliminate individual faults and eventually to mold the men into one characteristic appearance and manner of riding.

The Aids.

The horse is controlled by the effective use of the legs, the reins, the weight, and the voice. These means of controlling the horse are termed collectively *the aids.*

The Use of the Legs. Increased pressure of the legs at the rear edge of the girth causes the horse to move forward, to increase his pace, or to change to a

PLATE 11. **The Officer Mounted, Near Side.**

faster gait. The action may also be such as to cause the horse to engage the hind quarters. One leg acting alone and in rear of the girth causes the horse to move his hind quarters to the opposite side. If the increased pressure of the legs is insufficient, the rider should resort promptly to calm but increasingly energetic, successive blows with the legs until the horse responds. The heels should be kept low; heels or spurs should not be used unless the horse fails to obey the legs.

The Use of the Reins. Increased tension of the reins directly to the rear causes the horse to decrease the pace, to change to a slower gait, to halt, or to back. If the horse is standing still, an action of the reins and legs prepares him to move. A relaxing of the tension of the reins combined with a closing of the legs causes him to move forward, or if already moving. to increase the speed of the gait. Relaxing the reins does not mean loosening them so as to lose contact with the horse's mouth. The action of one or both reins toward one side causes

the horse to change direction. Detailed instruction in the application of this important aid follows on succeeding pages.

The Use of the Weight. Movement of the rider's weight forward tends to cause the horse, if at the halt, to move forward, or, if already moving, to increase the pace or change to a faster gait. Movement of the rider's weight to one side inclines the horse to move in that direction.

The Use of the Voice. The voice is the simplest and yet one of the most effective of all the aids. Its effect lies in the intonation rather than the words or phrases spoken. The low, gentle, soothing tones have a tendency to calm and quiet the horse, whereas the sharp, emphatic, higher-pitched tones have a tendency to excite and encourage him to greater activity. Clucking, a sound made by the combined use of the tongue, the teeth, and the cheek, though not, strictly speaking, a use of the voice, is a method commonly used to encourage the horse to move forward or to move faster. The use of the voice, like the application of any other aid, must be consistent with the effect desired. It must be used with discretion, as excessive or improper use soon renders it of little or no value in training or management.

The Use of the Aids in Combination. An aid is not usually employed singly, but in combination with one or both of the others. One aid does not need to act with as much force if assisted by another. For example, to move forward, or to increase the pace or change to a faster gait, the legs and weight are used together; to halt, or to decrease the pace or change to a slower gait, the reins and weight are used together, while to change direction the reins, the weight, and the legs may all three be used in combination.

In using the aids in combination the rider must be careful that the effect of one aid is not opposed to that of another. If, for instance, the rider is using the reins to slow up or to stop his horse he should not at the same time use the legs in a manner to provoke a forward movement. Similarly, in slowing up or halting the horse, the weight of the body must not be allowed to contradict the action of the reins. For example, to lean the body suddenly forward while using the reins to slow up the horse would more than counterbalance the effect of the reins; the horse would in such case move faster instead of slowing up or halting.

Manner of Applying the Aids. The action of the legs, the reins, or the weight should be intermittent and not continuous. If an action of the aids is prolonged and continuous, the horse becomes accustomed to the effect or has time to adjust himself so as to make resistance. Thus, if the reins are steadily pulled and the weight carried well back and allowed to remain there, the horse may shift his own weight forward to readjust his balance and move steadily onward without responding to such action of the reins and weight. If, on the contrary, the reins and the weight are used by quickly repeated applications the effect is very marked and the horse responds at once. A horse soon becomes very obedient if the aids are employed habitually in this manner.

In the same way the legs should not act by continuous pressure nor be released altogether but should preserve light contact in the intervals between the quickly repeated blows.

All actions of the aids should diminish in intensity when obedience begins and should cease entirely as soon as the desird result is obtained. The rider must not act with the reins when there is no reason therefor; to do so will eventually provoke the horse to pull, to fret, and to seeq to increase his pace more and more, whether at the walk, trot, or gallop.

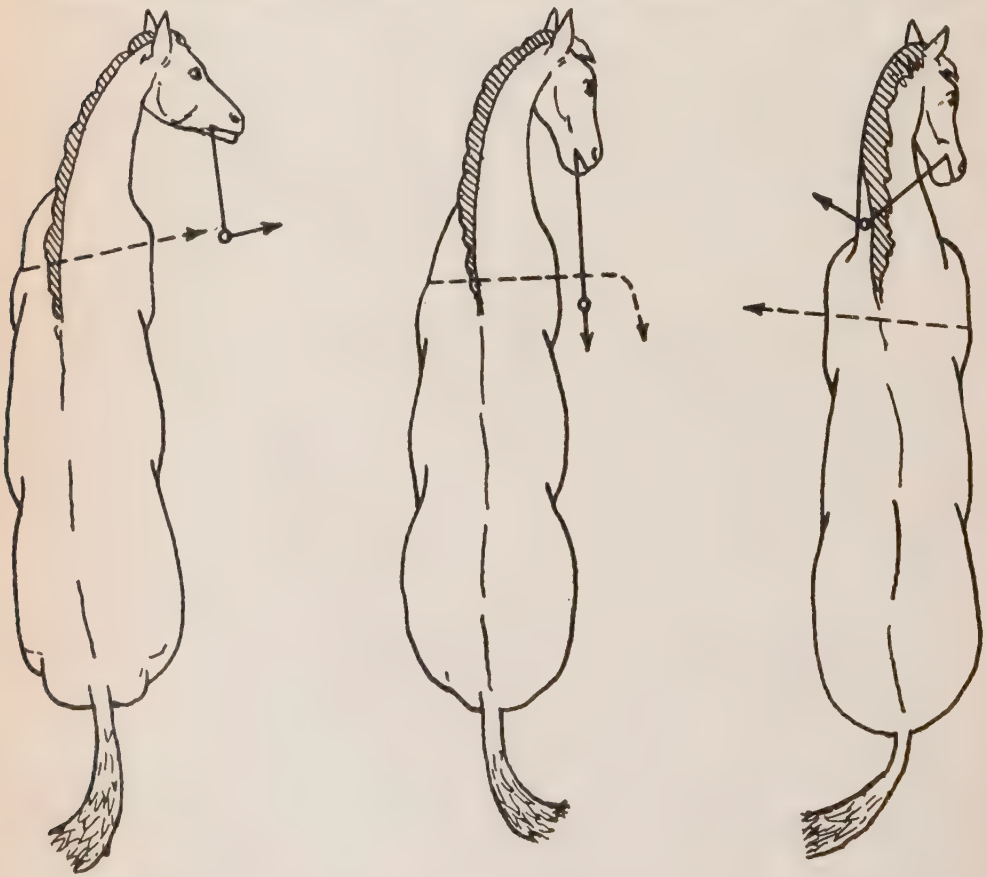
To Keep the Hand Steady. The hand should be kept low and free from involuntary movement; it should not bob up and down, nor pull, nor "give and take" without a real occasion, but should preserve an even tension on the rein.

To keep the hand or hands steady and yet to produce the desired effects of the bit upon the bars of the horse's mouth requires much practice. It is accom-

plished by a closing and gripping action of the fingers accompanied by an upward twist of the hand at the wrist.

Horses usually go well with riders who keep their hands steady. Riders can acquire the knack of keeping their hands steady only by continuous effort. Steady hands are dependent upon a supple body and a secure seat. The hands will continue to bob up and down, to jerk and pull on the reins so long as the body is stiff, the muscles and nervous system not under control, and the seat unsteady in the saddle. Horses are always restless, ill at ease, and inclined to pull or to run away with such riders.

If the gait is the walk the reins should be adjusted long. If the trot be taken, the rider should promptly shorten the reins to suitable length for that gait. If the gallop be taken, the rider may again need to lengthen or shorten the reins to suit the positions of the horse's head and neck at that gait, and, in addition, according to the speed of the gallop. It is by reflection and practice on his own



Right leading rein. Right direct rein. Right bearing rein.

PLATE 12. The Use of the Reins as Aids.

horse and by observation and study of the action of the horses of his comrades that the rider will learn how to do this. The point to be emphasized is that once having adjusted his reins to suit the speed of a given gait, the rider should thereafter refrain from continually shortening and lengthening them or letting the hands bob up and down.

The Leading Rein; the Direct Rein; the Bearing Rein.

The Leading Rein. The leading effect of the rein (the right, for example) is

produced when the rider opens the right rein by carrying the hand to the right and leads the horse's head and neck in that direction. This effect is accomplished without increasing the tension on the rein. To turn the horse to the right the rider employs the right leading rein, assisted by the effect of shifting his weight slightly to the right front, and the action of one or both legs.

In applying the leading rein (the right, for example) the rider, with but little movement of the upper arm and elbow, carries the forearm, wrist, and hand to the right. It is important that the rider produce no increased tension on the rein to the rear, that the joint at the wrist be not bent or cramped, that the back of the hand remain in prolongation of the forearm, and that the thumb incline outward so that the palm of the hand is slightly upward rather than vertical.

The Direct Rein. The effect of the direct rein, or rein of opposition, is produced when tension to the rear is placed on the reins. This effect of the reins in conjunction with the weight carried backward intermittently, causes the horse to slow up or to stop.

In applying the direct reins the rider closes his fingers on the reins and repeatedly twists his hand inward and slightly upward without moving his elbow to the rear. This rearward action of the reins should always be accompanied by the simultaneous intermittent effect of the weight.

The Bearing Rein. The bearing effect of the rein (the right, for example) is produced when the rider causes the right rein, without increased tension to the rear, to act toward the left against the right side of the horse's neck. This effect of the right bearing rein in conjunction with the weight carried slightly forward and to the left, accompanied by the action of one or both legs, causes the horse to turn to the left.

In applying the bearing rein (the right, for example) the rider carries the hand upward and to the left and presses the stretched rein against the middle part of the horse's neck. It is important that the rider produce no increased tension on the rein to the rear, that the joint at the wrist be not bent nor cramped, that the back of the hand remain in easy prolongation of the forearm, and that the thumb incline forward so that the palm of the hand is slightly upward rather than vertical. Used in this manner the effect of the rein is powerful and causes a sharper turn than the leading rein.

Exercises in the Use of the Reins. The instructor should introduce daily a few elementary but well-defined exercises in starting and stopping the horse and in turning to the right and left. In the beginning, to turn the horse, the beginner should be required to use the leading rein exclusively. In a few days he should be taught how to use the bearing rein in conjunction with the leading rein in turning the horse and, very soon, the bearing rein alone. Thereafter, even when riding with reins in both hands, the recruit should be required habitually to use the bearing rein for turning his horse.

The snaffle bit is used, as the effect of the snaffle bit is very mild, being received on the lips as well as on the bars of the mouth. Its action tends to raise the head and neck. It gives a comfortable support and is the most efficacious bit for relaxing the jaw by means of vibrations.

To Gather the Horse. To gather the horse, having a light pressure of the bit against the horse's mouth and a light feel of the lower legs against his sides, increase the pressure of the lower legs and slightly increase the pressure of the bit against the bars by closing the fingers on the reins. Gathering the horse serves as a signal to attract his attention and to prepare him to respond promptly to the subsequent application of the aids.

The *gather* should always be employed at a preparatory command involving movement. It is, thus, a preparatory signal to the horse. It should always be employed whatever may be the movement that is to be executed and whatever the gait at which the horse may be moving.

CHAPTER III.

FIRST PERIOD (Continued).

MOUNTED EXERCISES AT COMMAND.

The instruction in mounted exercises at the command of the instructor may be conducted in a riding hall or in any other area, inclosed or uninclosed, of similar size and shape. Each new movement is explained and demonstrated to the trooper, then executed by him. The instructor passes frequently from one trooper to another, giving individual instruction as needed.

In all exercises the instructor varies the gait so as not to weary the riders or horses. The instruction is conducted without hurry. The daily work begins and ends at the walk.

To Move Forward. 1. *Forward,* 2. *MARCH.* Being at the halt, at the command *Forward,* gather the horse. At the command *March,* incline the weight of the body forward, slightly relax the fingers of the left hand, and use the legs with quickly repeated applications until the horse moves forward.

To Halt. 1. *Squad,* 2. *HALT.* Being at the walk, at the command *Squad,* gather the horse. At the command *HALT* use the reins of opposition and the weight in combination and with repeated applications until the horse halts.

In using the weight the rider should keep the buttocks in the saddle, the legs in their proper place and snugly against the horse, and should carry the upper part of the body backward repeatedly. The head should be well up, the chest expanded, the shoulders free and well back.

The weight is not used effectively if the rider stands in the stirrups and lifts his seat out of the saddle, if he pivots on the crotch, if he carries his feet and legs to the front, or if he sinks the chest and advances the head and shoulders. The rider should, accordingly, have careful instruction and much practice in the exact use of the reins and weight in halting his horse.

To March to the Right (or Left) Hand. The rider is said to march to the *right hand* if, being on the track, the center of the riding hall is on his right; to the *left hand* if the center of the riding hall is on his left.

To Take the Track to the Right (or Left) Hand Without Regard to Distance Between Riders. The instructor commands: *TAKE THE TRACK TO THE RIGHT HAND WITHOUT REGARD TO DISTANCE.* Each rider directs his horse toward the track, and upon arriving there enters the track to the right hand. The riders are distributed over the whole length of the track. Each rider should keep his horse at the gait ordered and must preserve a safe distance in rear of the next horse.

There should be much work on the track without regard to distance between riders. They are then absolutely independent of each other, the only obligation being to maintain the proper gait and rate and to march to the hand directed when on the track. To avoid crowding the individual riders should turn out at will, move across the hall, and take the track at a convenient interval on the opposite side.

When riding on the track without regard to distance commands are not necessarily complied with at once; each rider, however conforms to them as quickly as possible, considering his place on the track and the position and readiness of his horse for properly executing the movement. Each rider should choose his ground so as to avoid interfering with his neighbor. Under such conditions thoughtful deliberation in using his aids and exactness of execution of the movement by individuals are the results desired by the instructor, and

not merely that all riders shall begin or end a movement at the same moment. Simultaneous execution of movements is a form of collective drill which should not be carried on except for occasional short periods for the purpose of checking results.

To Take the Track with Fixed Distances. The instructor commands: 1. *At the walk (trot or gallop) take the track to the right hand with 4 feet (or so many yards) distance.* 2. *GUIDE ON (SUCH TROOPER).*

The designated rider takes the track, if not already there, at the gait ordered. The other riders move by the shortest line at the gait ordered, or increased gait if necessary, and place themselves, one behind another, with the indicated distance from head to croup. All then ride at the gait and at the distance ordered.

In the riding hall the distance from head to croup, when riding with fixed distances, is habitually 4 feet. Out of doors, however, greater distances should frequently be used, such as 10 yards between riders. Such out-of-doors exercises are very useful for training men to control the speed of their horses and to maintain fixed distances from riders or groups of men preceding.

To Ride In. Being in any formation in the riding hall or out of doors, the instructor may command: *RIDE IN.* The riders, moving at the gait at which they were riding, or at the designated gait, and by the shortest line, group themselves about the instructor. Such oral instruction, explanation, or orders as may be appropriate are then given.

To resume the ride, the instructor gives the command or direction for the exercise desired. The riders move at the designated gait and by the shortest line to their places.

Changes of Gait. Being at the halt, to gather the horse and to move forward have been described.

Being at the walk, to pass to the trot, or, being at the trot, to pass to the gallop, the rider uses the same means as for passing from the halt to the walk.

Being at the gallop to pass to the trot or being at the trot to pass to the walk, the rider uses the same means as for passing from the walk to the halt.

Changes of gait are habitually made progressively, the walk being taken from the halt, the trot from the walk, the gallop from the trot, and vice versa. For instructional purposes and when necessary in service an increase or decrease of gait may be made more abruptly.

A change of gait of *one degree* is an expression which means a change from the halt to the walk, from the walk to the trot, from the trot to the gallop, or vice versa.

To Rise to the Trot (Posting). The horse being at the trot, the rider, to rise to the trot, inclines the upper part of his body forward, supports himself by pressing the knees against the saddle, and then permits himself to be impelled upward by the thrust of the horse's hind leg (the left, for example). He remains up during the stride of the right hind leg, and sits down just in time to be impelled upward again by the next thrust of the left hind leg. He continues in this way, avoiding the alternate strides of the trot. In order to catch the rhythm of the movement, the rider's attention should be directed toward the sensation of propulsion produced by the thrust of the hind leg rather than toward the merely supporting effect of the fore leg. It is upon the hind legs of the horse, so to speak, that the rider rises rather than upon the fore legs.

When learning to rise to the trot the beginner will make more rapid progress if he strokes his horse's neck at each effort to rise. Stroking the horse's neck assists the rider to catch the rhythm of the motion; it also causes him to incline his body forward at the proper angle.

In rising to the trot the seat should be raised moderately; contact with the saddle should be resumed gently and without shock; the knees should be pressed snugly against the saddle; the lower legs should be kept still, the ankle joint

supple, and the heel slightly lower than the toe. The rider's head should be up and his eyes glancing well out to the front; he must not lower the head and look down toward the horse's front feet.

To Change Hands. At the command ***CHANGE HANDS*** each rider, after having passed the corner of the riding hall and marched a horse length on the long side, directs himself toward the diagonally opposite corner so as to take the track to the opposite hand at about two horse lengths from the corner. Those going in an opposite direction are passed by keeping to the inside of the track.

By the Right (or Left) Flank. 1. ***By the right flank,*** 2. ***MARCH.*** Being at at the halt, at the command ***By the right flank,*** gather the horse. At the command ***MARCH,*** move the horse forward and at the same time use the leading rein (or the bearing rein) and the weight in such a manner as to turn the horse to the right. The turn is made on an arc of 90°. The radius of the arc when the horse is at the walk should be 2 yards; when at the trot, 4 yards; when at the gallop, 6 yards. During the movement the body of the horse should follow the arc on which he is turning. If, however, the horse prefers to carry his haunches somewhat to the inside of the curve, especially when at the faster

PLATE 13. To Take the Track with Fixed Distances.

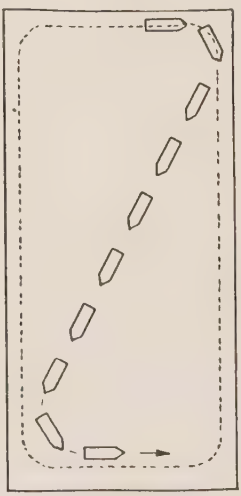


PLATE 14. To Change Hands.

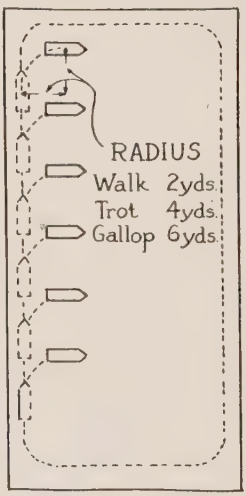


PLATE 15. By the Right Flank.

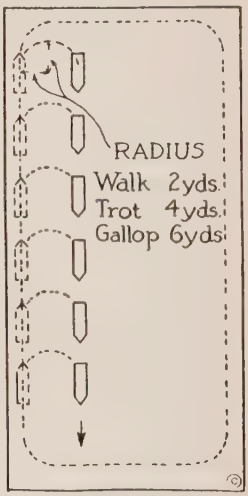


PLATE 16. The About.

gaits, the rider should not oppose it. But if, on the contrary, the horse caries his haunches to the outside of the curve his balance is adversely affected and the rider should oppose such action by using the left leg more strongly and slightly further back than the right leg.

In the first lesson in turning by the flank the rider uses the leading rein. Later he is taught to use the leading rein, assisted by the bearing rein; later the bearing rein alone, first with the reins in both hands, then in one hand.

By the left flank is executed by similar commands and means.

Right (of Left) Oblique. This movement is executed in the same manner as ***By the right or left flank,*** except that each rider turns his horse through an arc of only 45°.

The command is: 1. ***Right (or left) oblique,*** 2. ***MARCH.*** To resume the original direction: 1. ***Forward,*** 2. ***MARCH.***

The About. At the command 1. ***Right (or left) about,*** 2. ***MARCH,*** each rider turns his horse until he finds himself facing in the opposite direction and then moves to his new front.

The turn should be made on the arc of a circle whose radius is 2 yards at the walk, 4 yards at the trot, and 6 yards at the gallop.

Cross-Country Riding.

That time of each lesson not used in the riding hall or in riding on the road is utilized in riding cross country. For this instruction the following details govern.

Terrain. The unevenness of the ground selected should not be great. All fences, ditches, logs, and artificial obstacles are avoided.

Gaits. The gait should be principally at the walk, varied by short trots on selected ground, leading, and short halts for the purpose of readjusting saddle equipment. The speed of the regulation gaits should be carefully maintained by the instructor. It is highly important that the walk be not so fast as to cause restlessness and jigging and that the trot be at the rate of 8 miles an hour. The attention of the students should be directed to these gaits and the importance of maintaining them strongly impressed upon their minds. Abrupt changes in gaits are carefully avoided.

Formations. Starting out habitually in column of twos, the instructor should soon scatter the riders out in flock so as to cause each to ride as an individual. If more than one squad is present, each may be formed in a flock guiding on its own leader, the leader of the base squad guiding on the instructor. The squads may thus be formed in line with 50 to 100 yards intervals between squads, or in column of squads with extended distances between squads. Within the squads the formation may be in column of troopers, column of twos, column of fours, line, or line of troopers.

To Fall Out. The men being dismounted, in line, at the command 1. *By the right (left),* 2. *FALL OUT,* the man on the right leads his horse directly to the stable or picket line. The other men, in successive order from the right, follow at 4 feet distance until near their places on the picket line or in the stable, when they leave the column and move directly to their respective places. Having secured their horses, the men unsaddle and unbridle, groom their horses, clean their equipment, and place the latter as prescribed.

To hasten the movement the instructor may command 1. *By the right and left,* 2. *FALL OUT.* The men on the right and left of the line lead their horses directly to their places on the picket line or in the stable, followed in succession by the men on their right and left, successively.

If the men are in line facing their respective places on the picket line, the command *FALL OUT* may be given. Each man then moves directly forward to his place on the picket line.

If the men are dismounted, in column of troopers, or in any other similar formation, at the command *FALL OUT* the men tie their horses on the picket line or in the stable as directed and in an orderly manner.

To Stand to Heel. The horses being tied on the picket line or in their respective stalls in the stable, at the command *STAND TO HEEL* each man stands at attention 1 yard in rear of and facing his horse. The horses are then inspected by the instructor.

To Dismiss. The instruction period being concluded, the men are ordered to *FALL IN.* They are then marched to the organization parade in front of their quarters and are there dismissed.

CHAPTER IV.

SECOND PERIOD.

Program of Instruction *(continued)*. The horses are now equipped with bit and bridoon and the students habitually wear spurs.

Students are given some instruction in riding without stirrups. Not to exceed 15 minutes of each lesson shoul dbe used for riding in this manner. The length of trot periods without stirrups should not exceed five minutes.

The amount of instruction in jumping given during the second period should be strictly limited so as not to materially interfere with the instruction of the student in other work prescribed. The object of the instruction in jumping given during this part of the course is to enable the beginner when riding across country to negotiate obstacles such as small ditches and logs.

The exercises in equitation already given are repeated. In addition the following exercises should be utilized.

Adjustment of Bit and Bridoon. The instruction previously given the student in the fitting and adjustment of the bit and bridoon is carefully reviewed.

To Hold and Handle the Double Reins.

To Hold the Double Reins in Left Hand. The rider hangs the bights of the reins on the thumb of his right hand in such manner that the bight of the snaffle reins rest upon the bight of the curb reins. He then carries his left hand in front of his body, back of the hand to the front, and inserts the little finger between the left snaffle and left curb reins (the snaffle passing underneath little finger), the third (ring), finger between the left curb and right curb reins, and the second finger between the right curb and the right snaffle reins. He closes his hand lightly and in such maner that the reins come out of his hand between the thumb and forefinger. He slides the left hand to its proper position and, with the assistance of the right hand, adjusts the reins evenly and to proper length. With his left thumb he presses the reins forward and down upon the second joint of the forefinger and drops the bights of the reins to the right over the horse's shoulder. He drops his right arm to his side. The position of the bridle hand is now the same as that described for the single rein.

To Hold the Double Reins in Right Hand. The rider inserts the fingers of his right hand between the reins so that the reins are in inverse order to that prescribed for the left hand; the right snaffle rein now passes underneath the right little finger. The position of the hand is the same as that described for the single rein.

To Hold the Double Reins in Both Hands. The reins being held in one hand, the rider carries the other hand, back of the hand up, just in front of the bridle hand and so that the little finger is above the reins. He inserts the little finger between the snaffle and curb rein he wishes to grasp so that the snaffle rein will pass underneath. He adjusts all reins evenly and to proper length, then separates his hands until they are about 9 inches apart and in the position described for holding the single reins in both hands.

Practice in Adjusting and Handling the Double Reins. The recruits are given much practice in changing the double reins from one hand to the other, taking them in both hands, taking a single rein in one hand while three are held in the other hand, and in taking the snaffle reins in the right hand and the curb reins in the left hand. When riding with all the reins in, for example, the left hand, the rider sometimes needs to assist with the right hand. To do this

he reaches forward with the right hand and seizes the right snaffle or right curb rein and holds it in the usual manner. The left hand allows this rein to be drawn forward 3 or 4 inches but does not release it. When released by the right hand this rein is adjusted as before.

Manner of Holding the Reins During Rests and at Route Order. During rests and while riding at *Route order* the recruits are required to frequently change the manner of holding the reins. The instructor explains to the men that the

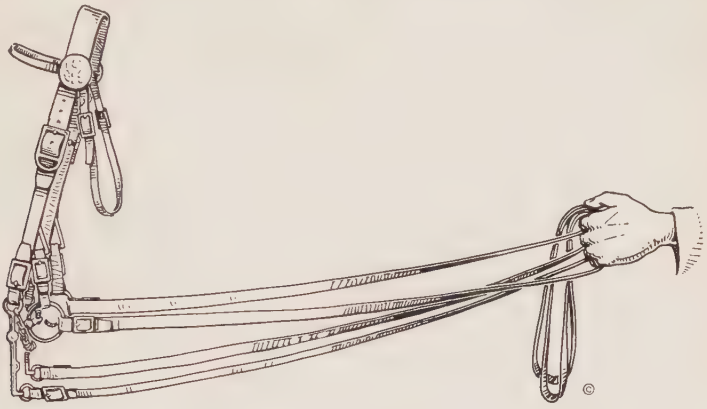


PLATE 17. To Hold the Double Reins in Left Hand.

purpose of these changes is to rest their own arm and shoulder muscles and to give an equally restful change to the muscles of the horse's head and neck.

The Effect of the Curb Bit. The effect of the curb bit is much more severe than that of the snaffle, because its action occurs almost entirely on the bars of the horse's mouth; the horse's lips and tongue ameliorate its pressure but little. This pressure acts downward and tends to lower the horse's head and neck. If the pressure of the curb bit is maintained for a long time, it becomes painful to

PLATE 18. To Hold the Double Reins in Both Hands.

the horse; also the bars of the mouth become numb, the curb chain stops circulation, and the horse's mouth becomes deadened to any action of the bit. This bit should not, therefore, be used continuously for long periods. Generally best results are achieved when the curb and snaffle bits are used in conjunction.

The Use and Effect of the Bit and Bridoon. The instructor explains and illustrates to the men the following three methods of using the bits of the double bridle.

Use of curb and snaffle. The horse may be ridden with a light and equal pressure of both the *curb* and *snaffle* bits. This is the method used at drill, on the march, and in cross-country riding or jumping. It is the method most commonly used. Riding in this manner, the rider may, on occasion, take the *curb* reins in the left hand and the *snaffle* reins in the right. This method is often found useful in the management of a hard-mouthed, stiffnecked horse. If the rider lightly alternates the tension of the *curb* and *snaffle,* the sensation thus produced on the bars of the mouth is very effective. When so used the bit and bridoon bring about the gradual relaxation of the muscles of the jaw and the poll and, as a result, the horse becomes light and obedient. The rider may also, on occasion, take three reins in the left hand and the right *snaffle* in the right hand. With the reins held in this manner the rider, by gentle vibrations of the right *snaffle* rein, causes the horse to relax the muscles of his jaw and poll, or by an upward effect of the right *snaffle* rein causes the horse to raise his head when carrying it too low, or by using the right *snaffle* rein as a bearing rein or leading rein renders sudden and powerful assistance to the left hand when riding with the reins in one hand. The last instance named finds valuable application when in the charge or the melee the trooper rides with the reins in the left hand and the saber or pistol in the right hand. The soldier can then reach forward with the right hand and grasp the *snaffle* rein for momentary use in maintaining or regaining control of his horse.

Use of snaffle alone. An exceptional method is to ride the horse on the *Snaffle* alone, the curb reins swinging loose. This is the method used with horses that arch the neck unduly, that are behind the bit, that are nervous and restless and will not walk, or that have tender mouths.

Use of curb alone. The third method is to ride the horse on the *curb* bit alone, the snaffle reins swinging loose. This method may be used by the soldier in the mounted charge and on occasions of excitement and stress for the effective control of the horse.

The Use of the Spur. The spur should not be used at all if the same result can be obtained by the use of the calf of the leg. For the majority of riders and horses the blunt spur is to be preferred to the one with rowel. The latter is often a severe instrument, which should only be worn by experienced riders. The spur should be used just in rear of the girth and with a series of successive touches rather than a constant pressure. These should cease as soon as the horse obeys. The shank of the spur is of such length that the horse can be touched by the rider simply rotating the ankle without depressing the toe or raising the heel. The spur is properly adjusted when the straps hold it snugly in place and parallel to the ground at the height of the top of the boot or shoe counter.

To Ride Without Stirrups. Riding without stirrups when properly conducted is of great value in training a beginner to ride. It develops his balance, confirms and strengthens his seat in the saddle, and increases the strength and pliancy of his muscles.

When riding without stirrups the gaits should be the walk, the slow trot, or the gallop. If the trot is faster than 6 miles an hour, it will, by its roughness, cause excessive weariness, soreness, and abrasions, thereby defeating the object in view.

The students should now be able to ride without stirrups for about 15 minutes of each instruction period. To avoid undue fatigue to the riders the instructor will frequently change the gait and exercise.

It is best not to cross stirrups. The upturned stirrup straps usually injure the muscles of the thigh. Stirrup straps should be unbuckled and the stirrups and straps entirely removed from the saddle.

In riding without stirrups the rider seeks, by sitting his horse correctly, by relaxing all unnecessary tension of muscles throughout the body, and by following pliantly the rhythm of the horse's motion, to relieve his body from constraint

and shock. To do this the rider keeps his thighs in their correct position and does not extend them downward so as to ride on his crotch; he keeps his lower legs snugly in place behind the girth, without stiffening the knee or ankle joints; he sits deep in the middle of the saddle, with his buttocks well underneath his body; and he inclines the upper part of his body slightly backward in order to insure relaxation and pliancy in the region of the loins. The abdominal muscles should not be loose and flabby; they should be "tucked up" so as to draw in the waist at the abdomen and thus assist in retaining the outward curve of the spine. The muscles of the arms and shoulders should be without constraint but should not become so loose as to detract from an appearance of form in the upper body. The upper body should be held easily and gracefully erect, the shoulders square, the chest well out, the neck well postured, the head up, and the eyes glancing well to the front.

MOUNTED EXERCISES AT COMMAND.

To Pass From the Front to the Rear of the Column. Being on the track in column of troopers, at the walk, the instructor commands: 1. *First trooper from front to rear,* 2. ***MARCH,*** 2. ***NEXT.*** At the first command the leading rider gathers his horse. At the command, ***MARCH,*** he leaves the column by the right or left about, according to whether he is marching to the right or left hand, moves parallel to the column, and enters it again at the rear by another about. The riders in succession execute the same movement at the command ***NEXT,*** which is repeated by the instructor until all the troopers have passed from front to rear.

The instructor may vary this exercise; for example, he may cause the first rider, at the command, ***MARCH,*** to move straight forward at the increased gait and, passing entirely around the circuit of the track, rejoin the column at the rear.

Increasing and Decreasing the Pace. Exercises in increasing and decreasing the pace are valuable for the following reasons:

They afford excellent practice in the use of the aids.

They teach the rider how to control the speed of his horse so that he can keep his horse in proper position with the other riders.

They improve the balance and discipline of the horse, thus increasing the comfort of the rider.

In executing the following exercises the instructor emphasizes the importance of a secure seat, steadiness of legs, a sense of balance or accord between rider and horse, and tactful use of the aids. The riders will experience their greatest difficulty in attempting to slow up horses which seek continually to increase the pace. In such cases the timely employment of vibrations of the right snaffle rein or of divisions of support will forestall many resistances of the horse.

Being at the walk, to cause the horse to walk faster, the rider increases the pressure of his legs and inclines his weight slightly forward. As the horse extends his neck and head the rider, without allowing the reins to become slack, increases the length of the reins. The hands are kept low and steady.

Being at a fast walk, to cause the horse to walk slower, the rider increases the tension in the reins and inclines the weight slightly to the rear. The hands are kept low and steady. Care must be taken not to draw in the horse's head and neck too much, as such action usually causes the horse to fret, jig, and prance. With nervous horses the increased tension on the reins must be applied very gently and no stronger than is absolutely necessary.

Being at the regulation trot, to cause the horse to trot faster, the rider applies the same aids as described above to cause the horse to walk faster.

Being at the trot, to cause the horse to trot slower, the rider applies the same aids as described above cause the horse to walk slower. In executing this

movement, if for any reason the rider desires more collection in his horse, this collection is secured by increasing the pressure of the legs.

Being at the regulation gallop, to cause the horse to gallop faster, the rider applies the same aids as described to cause the horse to walk faster or to trot faster.

Being at the gallop, to cause the horse to gallop slower, the rider uses the same aids as described to cause the horse to walk slower or to trot slower. If the horse is galloping at or near full speed and it is desired to bring him down to the regulation gallop quickly, this can generally be accomplished most easily by suddenly depriving the horse of the steady support of the reins and using the reins and the weight thereafter intermittently and in combination.

To Move Backward. The command is: 1. ***Backward,*** 2. ***MARCH,*** 3. ***HALT.*** At the command ***Backward*** the rider gathers his horse. At the command ***MARCH*** the rider uses the direct reins and the weight in combination until the horse takes one or two steps backward, after which the rider ceases to use his weight and continues to use the direct reins to cause the horse to continue to back. If the horse backs too fast or lowers his croup too much the rider's weight is carried slightly forward to counteract this tendency. At the command ***HALT*** the action of the direct reins ceases, the weight is carried forward, and the legs are used sufficiently to stop the backward movement. In training, the halt should always be immediately followed by two or three steps forward.

Backing, like the turn on the forehand, many cause the horse to "get behind the bit;" it may also cause serious injuries to the hocks. Therefore, its use should be limited to strict necessity; that is, for the satisfactory instruction of the soldier and the horse. Thereafter the horse is backed only when necessary.

To Ride at Will. The instructor commands: 1. ***At the walk (trot or gallop),*** 2. ***RIDE AT WILL.*** The riders scatter out in the interior of the riding hall, or over a designated area if out of doors, ride at the gait ordered, and execute on their own initiative such movements and exercises as the instructor specifies. When riders meet each keeps to the right.

Horses and men alike seek companionship; they prefer to move in a body and do not like to act alone. Although both require collective training, they need far more to be taught to go ahead as individuals. Riding without regard to distances should be the rule both indoors and outdoors during instruction in equitation, and riding with *fixed distances* should be the *exception.*

CHAPTER V.

SECOND PERIOD (Continued).

SUPPLING EXERCISES.

The mounted suppling exercises, like all physical-culture exercises, depend for their good results upon the regularity and thoroughness with which they are practiced daily. Thus, long hours or intensity of application on one day do not compensate for the lack of practice on previous days. Furthermore, to produce the best results these exercises must be performed correctly, for, if performed incorrectly, they may serve only to confirm existing faults. Hence it is highly important that the instructor and the beginner alike have well in mind the object in view in each instance. Accordingly, in taking up a new exercise, the instructor gathers the class about him and briefly explains and illustrates the exercise. He then causes the students, at the halt, to practice accurately the exercise just explained. When understood by the riders and systematically applied by the instructor the suppling exercises produce quick results. They may be executed either with or without stirrups.

The gaits employed during the suppling exercises should be the walk, the slow trot, and the gallop. The gallop should be employed very early in the instruction and used chiefly thereafter, because it is the most favorable gait for suppling the rider's loins. The gallop can be maintained for long periods without undue fatigue. The slow trot, on the contrary, is not only trying to inexperienced riders, but if prolonged, may cause such abrasions of the skin and soreness of the muscles as to retard rather than promote progress. There should, nevertheless, be much work at the slow trot, but for short periods only.

The instructor causes the riders to take the track without regard to distance; if they march to the right hand they hold the reins in the left hand; if to the left hand they hold the reins in the right hand. Thereafter they take the reins in one or both hands, drop and retake them as necessary, without command.

Occasionally, as a temporary measure, the instructor may cause the riders to knot the reins and release them entirely. Habitually, however, the reins should be held while doing the suppling exercises; the rider is then cultivating a good hand in conjunction with a good seat. Moreover, the instructor is then able to point out instances illustrating the effect produced upon the bridle hand by the stiffness and bobbing of the body due to a poor seat.

While practicing an exercise the beginner should pay great attention to the position and steadiness of the bridle hand and the suppleness of the wrist, elbow, and shoulders. He should endeavor to coordinate and to separate his movements; thus, while moving or using one part of the body, he should neither unconsciously nor nervously contract the muscles in an unrelated part of the body nor move the bridle hand.

The students being suitably disposed on the track at the gait ordered, the instructor places himself near to and facing the track and gives the command for the desired suppling exercises. At the instructor's command, ***AS YOU WERE,*** each rider discontinues the exercise. The exercises are not performed in unison.

The instructor in his observations and criticisms confines his attention chiefly to the riders passing in front of him. Those riders who are beyond the view of the instructor are then enabled, with less self-consciousness, to recover their equilibrium and to adopt corrective measures.

The instructor should give his commands, observations, and criticisms in such a manner as to be easily heard and understood, but he should avoid shouting

or scolding. When prolonged or special explanations are necessary the rider in question should be required to fall out of the column and report to the instructor. If several riders are involved, the instructor should assemble the whole column in order that all may profit from his instructions.

The suppling exercises have for their object the attainment of strength, pliancy, and easy control in the parts of the body most affected in riding. These are the neck, shoulders, loins, hip joints, knees, and ankles.

To Supple the Neck. The object of neck exercises is to combat rigidity of position due to the contraction of muscles in the region of the neck.

The instructor commands: ***ROTATE THE NECK.*** Each rider slowly turns the head and eyes as far as possible—first, to the right; then, without pause, to the left. The exercise thus continues until the instructor commands: ***AS YOU WERE,*** whereupon each rider ceases the exercise and resumes the initial position.

The instructor commands: ***FLEX THE NECK.*** Each rider slowly carries the head as far as possible upward and backwards and then, without pause, as far as possible, forward and downward. The exercise is thus continued until the instructor commands: ***AS YOU WERE.***

To Supple the Shoulders. The object of the shoulder exercises is to combat rigidity of position due to contraction of the muscles in the region of the shoulders and to cultivate coordination of muscular effort.

The instructor commands: ***ROTATE THE RIGHT (LEFT) ARM VERTICALLY.*** Each rider extends the arm straight upward, wrist and hand relaxed; without pause, he then carries the arm to the rear, downward, forward, and upward in such a manner as to describe, with uniform movement, a vertical circle. The exercise is thus continued until the instructor commands: ***AS YOU WERE,*** whereupon each rider ceases the exercises and resumes the initial position.

To Supple the Loins. The object of the following exercises is to give the rider practice in rotating and flexing the body in the region of the loins. The movements should be executed in such a manner as gradually to bring about the desired result—suppleness.

The instructor commands: ***SWING THE RIGHT (LEFT) ARM FROM FRONT TO REAR, HORIZONTALLY.*** Each rider extends the arm straight to the front, fingers extended, palms upward. He then, without pause and by rotating the body in the region of the loins, swings the shoulders and arm to the right, the arm moving in a horizontal plane until the hand is over the horse's croup, the eyes following the hand. Each rider thus continues the exercise, swinging the shoulders and arm in horizontal plane, by rotating the body at the waist until the instructor commands: ***AS YOU WERE.***

The instructor commands: ***STROKE THE HORSE ON THE RIGHT (LEFT) SHOULDER WITH THE RIGHT (LEFT) HAND.*** Each rider, by flexing the body at the waist, leans slightly forward and downward and gently strokes the horse on the shoulder until the instructor commands: ***AS YOU WERE.***

The instructor commands: ***STROKE THE HORSE ON THE LEFT (RIGHT) SHOULDER WITH THE RIGHT (LEFT) HAND.*** Each rider, by rotating the body in the region of the loins, carries the hand over the reins and downward to a position opposite the designated shoulder of the horse. He then gently strokes that shoulder until the instructor commands: ***AS YOU WERE.***

The instructor commands: ***STROKE THE HORSE ON THE LEFT (RIGHT) SHOULDER AND THE RIGHT (LEFT) HAUNCH WITH THE RIGHT HAND.*** Each rider, in the same manner as in preceding exercises, strokes the horse on the designated shoulder with the designated hand and

then, without pause, while rotating the body in the region of the loins, turns the shoulders and arm to the right (left) rear, the eyes following the hand, and strokes the horse on the designated haunch. He thus continues the exercise, alternately stroking the horse on the shoulder and haunch, until the instructor commands: *AS YOU WERE.*

The instructor commands: *SWING LOW TO THE FRONT WITH THE RIGHT (LEFT) HAND.* Each rider extends the arm vertically upward, palm to the front, leans to the right (left) and downward by flexing the body at the waist, and makes a low sweeping stroke from the rear to the front; he then resumes the initial position of the body, the arm extended vertically upward. With a slight pause, he thus continues the exercise until the instructor commands: *AS YOU WERE.*

The instructor commands: *RAISE THE THIGHS.* Each rider, inclining the upper part of the body slightly backward, raises the thighs only so much as is necessary to detach them and the lower legs from contact with the saddle. The rider thus balances on the buttocks, which should be pushed well underneath the body. This exercise requires the rider to flex the body at the loins in order to follow the motion of the horse and to minimize the effect of the shock. Riders should not be required to maintain this position continuously; they take and retake it, according to their ability to do so without falling. The exercises ceases at the instructor's command: *AS YOU WERE.*

To Supple the Hip Joints. The object of the following exercises is to supple the muscles in the region of the hips and flatten the inner thigh surfaces of the rider's legs.

The instructor commands: *ROTATE THE RIGHT (LEFT) THIGH.* Each rider removes the thigh from against the saddle, straightens the leg and carries it back until vertical. He then rotates the thigh at the hip joint by turning the knee inward, and, pressing the thigh hard against the saddle, draws it forward to its normal position. The friction of the thigh against the saddle presses backward the muscles underneath and back of the thigh, thus permitting the femur to rest solidly against the saddle. The lower leg is replaced in its normal position. The foot should hang naturally, without constraint. No attempt should be made to turn the foot either outward or inward. Its position in this respect is dependent upon, and a natural consequence of, the flatness of the inner surfaces of the thigh and the degree of its rotation inward.

This exercise should habitually be given at the halt; if executed while the horse is in motion serious injury may occur in the region of the hip joint. The riders, being at the halt, the instructor directs them to rotate the right thigh and carefully fix it in position; next, similarly, the left thigh. He then causes the riders to take the walk, the slow trot, or the gallop, during which they should try to confirm the new position. After a few moments, however, the riders become shaken out of the exact positions assumed. The instructor then brings them to the halt, directs them to again rotate one thigh, then the other, and to fix their position, after which he causes them again to move forward.

To Supple the Knees. The object of the following exercises is to render the knee joints supple, combat the involuntary contractions to which the knee joints are liable, and cultivate the coordination of muscular effort.

The instructor commands: *FLEX THE RIGHT (LEFT) KNEE.* Each rider, removing the lower leg from against the horse, carries it backward and upward until horizontal and then, without pause, returns it to the normal position. The exercise is thus continued until the instructor commands: *AS YOU WERE.*

To Supple the Ankles. The object of the following exercises is to assist the rider in overcoming involuntary contraction and stiffness in the ankle joints, in lowering the heels properly when riding with stirrups, in retaining the stirrups

by the easy flexibility of the ankle joints, and in overcoming the tendency to stand stiffly in the stirrups.

The instructor commands: ***ROTATE THE RIGHT (LEFT) FOOT.*** Each rider traces with the toe, by a slow and uniform movement, a circle in a vertical plane perpendicular to the horse. In tracing the circle the rider's toe first moves toward the horse. The exercise is thus continued until the instructor commands: ***AS YOU WERE.***

The instructor commands: ***FLEX THE RIGHT (LEFT) ANKLE.*** Each rider slowly flexes the ankle by raising the toes upward as far as possible and then, without pause, extending them downward as far as possible. The exercise is thus continued until the instructor commands: ***AS YOU WERE.***

JUMPING OBSTACLES.

The jumping of obstacles is the best exercise for developing a good seat. If the obstacles are low, so that they can be passed over while the rider is at the same time engaged in some phase of the suppling exercises, progress in the acquisition of a good, close seat is very rapid. Also, if the instructor conducts such exercises daily for even a few minutes the rider soon acquires good form in riding, his position on horseback becoming correct, easy, and graceful. As the rider's seat becomes more secure his hands become lighter and his use of the reins, the weight, and the legs more accurate and effective. Secure in his seat and confident of his ability to control his horse, the rider becomes more aggressive on horseback. He rides boldly up and down hills, over banks and bluffs, and jumps ditches and other small obstacles, whereas the inexperienced rider looking upon such obstacles as insuperable or too dangerous, hesitates, stops, and loses time in seeking a way around. Good form in jumping may be obtained in but one way—by constant practice on many different horses.

Instruction and practice in jumping obstacles is divided into two phases. The first phase, called the *gymnastics of jump*, has for its object the cultivation in the rider of suppleness of body, security of seat, ease and grace of position, and freedom from nervous contractions of the muscles due to apprehension. The object of the second phase, called *conducting the horse to the obstacle, over it, and beyond it,* is to teach the rider the correct use of the aids in the management of the horse. From the beginning the instructor should, in general, devote equal attention to each of these phases. He should be careful to graduate the difficulties involved according to the proficiency and progress of the riders.

The Gymnastics of the Jump. This is an exercise which should be conducted in the same general manner as are the *suppling exercises,* except that now, as an additional feature, low obstacles are placed across the track. At first the instructor causes one bar to be placed on the track; later he places another bar 10 feet from the first; still later he raises the second bar about 18 inches from the ground. If all goes well, in due time he raises the first bar; then he puts down a third bar, and finally a fourth. He does not do all this the first day. Instead, he graduates the difficulties thus created according to the progress of the riders, always remembering not to make demands too suddenly, and to avoid, if possible, falls and accidents. Eventually, he adds variety to the work by putting the obstacles at unusual places, as, for instance, near a corner, or at irregular intervals along the track. The obstacles having been placed on the track in the manner above indicated, the riders are required to take the track without regard to distance; first, at the walk, later at the slow trot, and eventually at the gallop. To maintain the speed of a slow gait without shortening the reins, lifting the hands, or pulling on the reins as the horse approaches the obstacles is in itself a most valuable exercise. The riders, during their continuous circuit of the track, execute such suppling exercises as are indicated from time to time by the instructor. They hold the reins, which should be long, in the hand next to the wall of the riding ring. Each rider should endeavor to maintain the speed of

the gait ordered without exciting his horse to resistance. If a rider is unable to maintain the speed of the gait without crowding unduly upon the rider in front of him he should turn out and, by proceeding straight across the hall, take a vacant place in the column.

The extent to which a rider is able to display indifference to the presence of obstacles is an indication of the extent to which he is able to control his nervous reactions and apprehensions. The extent to which he is able to carry on the suppling exercises without flinching, pausing in his movements, or contracting his muscles as his horse approaches and takes an obstacle, is a measure of the extent to which he is able to co-ordinate and regulate his movements. For example, when the riders are executing such an exercise as rotating the arm vertically one may suddenly discontinue the exercise as he approaches a jump; another may grip the fingers of the hand; a third may become rigid in the elbow or the shoulders; while still a fourth may stop rotating the arm altogether and hold the hand high in the air as his horse takes the jump, and then, without realizing it, rotate his arm very swiftly to make up for lost time. All riders may thus display some form of nervous contraction of the muscles and each in a different part of the body for a different reason and to varying degrees. If both the effect and the remedy for it are pointed out to the riders they will become greatly interested, and if the instructor conducts the exercises with regularity and system each rider soon solves and conquers his own personal difficulty.

Prior to executing the above-described exercises the horses should be "warmed up" by brisk work.

Provided the horse is in good hard condition, it is no undue hardship for him to keep up the gallop for a period of 15 or 20 minutes and to continue jumping in succession three or four low obstacles placed at intervals around the track of the riding hall. The horse under these circumstances soon overcomes any tendency to rush the jumps, and gradually acquires the habit of jumping while taking the obstacles in his galloping stride. Having great freedom of action, he acquires handiness. By the long periods at the gallop his general condition is improved, and by the mild gymnastics involved in thus leaping low obstacles his so-called jumping muscles are developed and strengthened. The rider, meanwhile, having only to guide or restrain his horse so as to retain his place in the column, can abandon himself completely to the motion of the horse and thus acquire ease and flexibility.

Conducting the Horse to the Obstacle, Over It, and Beyond It. Just prior to starting work in this phase of jumping both horses and riders are "warmed up." While calling out individuals to jump the instructor makes it a point to keep the others moving and practicing suppling exercises.

For the purpose of teaching the beginner the correct manner of conducting the horse to the obstacle, over it, and beyond it, the instructor should erect in the center of the riding hall a long obstacle of moderate height. In the beginning this obstacle should be merely a bar laid on the ground, its height being gradually increased until it has reached toward the end of the course a height of 3 feet.

High jumps are as a rule taken at a gallop of moderate speed and broad jumps at an extended gallop. For broad jumps *it is important that the speed be increased as the obstacle is approached.*

Throughout the instruction in jumping the instructor should impress upon the riders the following points:

Preparatory to approaching a jump, the rider should sit deep in the saddle, adjust the reins, and gather the horse. Being well seated at the outset, if the horse bounds suddenly forward, the rider will not lose his balance and have to lurch forward to regain it. Moreover, he will be more at his ease, more secure in the saddle, and more efficient in his use of the aids. The reins being correctly adjusted, there should, ordinarily, be no occasion thereafter to shorten or lengthen them or to let them slide. By means of the forward inclination of the

body and the opening of the angles formed by his shoulders, elbows, and wrists, the rider can usually give the horse any additional rein that he may require. The horse being properly gathered, he will be more readily set in motion and the more easily controlled. The fingers should never be clamped on the reins; they should be closed, but without contraction.

In approaching the obstacle it is essential that the rider proceed steadily toward a previously selected point of it, that he ride at the gait prescribed, and that he keep his shoulders leading the points of his hips. He should ride easily, using the legs with just sufficient energy to insure the vigorous forward movement of the horse, and keeping the hands low and steady.

Should it become necessary in guiding the horse to use either the leading or bearing rein, the action of the rein should be without traction to the rear. This last point is very important. To produce an effect of traction to the rear is restraint; this is likely to cause the horse to move faster and to pull.

If the horse needs to be restrained in order to preserve the speed of the gait prescribed the rider should discreetly apply the direct rein and the weight in combination. In this case he must avoid "getting behind" his horse. This con-

PLATE 19. Jumping Obstacles, Showing the Take-Off and Landing.

dition occurs when the rider allows his weight to be displaced so far to the rear that the thrust of the horse in making the jump pulls rather than pushes the rider's weight over the obstacle. The rider should exert the exact measure of restraint necessary to slow up the horse and no more; to use his strength excessively and roughly merely excites the horse and provokes resistance. As a rule the only resistance the horse makes is to fight the bit and increase the speed, both of which may be avoided if the rider has a firm seat in the saddle and exercises tact in the use of the aids.

Should the horse hesitate as he approaches the obstacle, the rider should use the legs with just sufficient force to preserve the proper gait. If the horse stops in front of the obstacle or runs out and avoids it the rider should gather him sharply and then quiet him, but without seeming to reward him. He should ride back to a point about 10 yards from the obstacle and again approach it, exercis-

ing great care to prevent the horse from making the same or still another resistance.

If upon approaching the obstacle the horse gets out of hand, goes too fast, or bolts, the rider in his use of the aids must be sure to give the horse his head before he actually jumps. Such a horse should be turned back to jumping very low obstacles or bars laid on the ground until he becomes calm and manageable.

A horse should give his attention exclusively to the obstacle and to the ground over which he approaches it. His head and neck should be free and his ears pointing forward. No action or movement of the rider should disconcert the horse, cause him to lose confidence, or direct his attention backward. A horse is quick to detect a spirit of hesitancy and indecision upon the part of the rider and is likely to take advantage of this condition by either running out or refusing. The rider, therefore, should cultivate and display a spirit that is quiet, easy, confident, and bold; this greatly calms the horse, steadies his gait, and assures his best performance in jumping.

On arriving near the obstacle the rider should slightly increase the pressure of the lower legs, knees, and thighs; relaxing at the waist, he should settle down into the middle of the saddle. He should keep the upper part of the body slightly forward and the hands low and steady.

If the rider's body is inclined forward with the waist relaxed, the upward bound of the horse with the resulting upward movement of the rider's seat

PLATE 20. The Jumping Seat.

causes the body to bend more at the waist and to appear to dip toward the horse's neck. As the horse descends on the far side of the obstacle the rider's seat descends also, with the result that the rider's body is again nearly upright. This should be accomplished without the rider's seat hitting the seat with a bump. The descent of the rider's seat, as the horse alights, is controlled by the rider *slowly decreasing* the angle formed by his thigh with his lower leg, this angle having previously been increased as his body went forward and his seat upward. The

gradual decrease of this angle and the continued forward inclination of the upper part of the body avoids the shock of the rider's weight being received in the saddle as the horse alights. Thus, the actions and postures of the rider's upper body during the jump are automatic rather than premeditated and deliberate. As a result the tightness of the seat, the flexibility of the waist, and the freedom and ease with which the shoulders and arms are carried cause the rider unconsciously to adjust himself not only to the normal motion of the horse but also to any sudden and unexpected reactions due to an exceptional effort or accident.

After the first stride on the far side of the obstacle the rider's body should again assume the normal position. He should be deep in the saddle, his legs correctly placed, and his hands low and steady. The degree of forward inclination of the rider's body is now dependent on the pace at which he is riding. The shoulders should be square, the chest out, the head erect, and the eyes glancing forward. In a word, the rider should be ready for the next obstacle or the next thing that may happen; he should in no way be at a disadvantage as regards his position or his ability to make effective use of his aids. If the reins are long enough and taut at the outset they will be long enough during the jump to give ample freedom to the horse for using his neck as a balance without in any way hurting his mouth; after the jump, also, they will be still at the proper length for controlling the horse and will at the same time afford him liberty to use his strength in the next effort.

The rider should let the reins slide through the fingers whenever necessary to avoid injuring the horse's mouth or interfering with his action in jumping. This is necessary when the rider gets "behind his horse." Also, when a horse makes a bad fault it is advisable to give him his head and let him take care of himself.

The horse having jumped the obstacle, the rider should neither hesitate, slow up, nor turn and look back. He should, instead, ride steadily onward at the gait at which he approached the obstacle.

It is very important to impress upon riders that if several are jumping at the same obstacle each should jump that section directly in his own front and thereafter continue in his original direction. It is both disconcerting and dangerous for one rider to change direction at the last moment and jump a section selected by another. Nor should one rider jump directly in the trace of another unless at a considerable distance in rear.

Common Errors to be Guarded Against in Jumping. The following is a list of the common errors of riders when jumping and the causes thereof:

ERROR	CAUSES
Getting behind the horse on the approach, or at the take-off, or both.	Rider not ready to go with his horse, or rider's weight too far to the rear.
Falling on the horse's neck on landing, and occasionally when the horse places himself for the take-off.	Rider's legs too loose.
Hitting the horse in the mouth with the bit ..	Rider behind his horse, and fails at the take-off to relax hands to permit reins to slide through fingers as needed. Rider's hands not relaxed when horse jumps.
Toes down and heels up	Improperly adjusted stirrups, or improper manner of closing legs on horse, usually the latter.
Looking down over the shoulder on either side.	Mental and physical tenseness.
Looking back at jump	Mental and physical tenseness.
Losing stirrup	Rider behind horse, loss of balance forward or to one side, or improper method of supporting the weight of the body or of closing or improper presentation of horse to jump.
Repeated refusals	Failure or inability to use the aids properly, legs on the horse.
Unsteady hands	Insecure seat, mental and physical tenseness, or lack of muscular coordination.
Repeated run-outs	Failure or inability to use aids properly, or improper presentation of horse to jump.
Floating reins on approach or take-off	Unsteady position of body.

Marching Under Field Conditions. At the end of the second period the instructor will take the students on a short practice march of approximately 5

miles length. For this march the riders will be fully armed and equipped and the saddle packed as for field service. During this march they will be carefully instructed in the following:

March discipline.

Proper rate of speed at the walk and the trot.

The use and value of leading.

The correct adustment of saddle and equipment prior to the start of the march and during regular halt periods.

Watering.

CHAPTER VI.

THIRD PERIOD.

Program of Instruction (continued). Horses should now be equipped with bit and bridoon and the men habitually wear spurs.

When the time is available two lessons per day are advisable, each lesson being of approximately one and one-half hours duration. When time for two daily lessons is not available the work may be covered by one lesson per day of *not less* than two hours duration, exclusive of the time required to care for animals and equipment.

The men ride without stirrups during the first 15 minutes of each day's instruction, using the snaffle bit alone. The curb reins are knotted and dropped on the horse's neck. This first half hour is devoted entirely to those exercises which tend to improve and confirm the seat, namely, the suppling exercises and the gymnastics of the jump. During the remainder of each day's instruction the men habitually ride with stirrups.

While the men are riding with stirrups the instructor gives close attention to the difficulties encountered by them. For example, many men are unable to retain their stirrups; others stand in their stirrups; others ride with their stirrups too long, thus cultivating a "forked seat"; others ride with their stirrups too short, thus lifting themselves out of the saddle, tiring their leg muscles, and riding in the rear part of the saddle seat. The stirrups should be of such length as to cause the lower leg to extend downward and backward and to rest comfortably and snugly against the side of the horse, leaving the knee and ankle flexible and the heel lower than the toe.

During this period of instruction the instructor will continue to use the exercises prescribed for the preceding two periods. In addition he will use the following exercises for advancing the training of the men in equitation.

THE GAITS.

The gaits commonly found among riding horses are of two general classes: *Natural gaits* which include the walk, trot, gallop and extended gallop or run; and *artificial gaits*, resulting from training and specialized breeding, which consist of the fox-trot, the running walk, the pace, the rack, the single-foot and the canter.

The Mechanism of the Natural Gaits. The instructor will briefly explain and illustrate by use of a horse the mechanism of the following gaits.

The *walk* is marked by four beats. The feet are raised successively and planted in the order in which raised; for example, right fore, left hind, left fore, right hind.

The *trot* is marked by two beats and a period of suspension. The horse springs from one diagonally disposed pair of feet to the other; between the beats all the feet are in the air. The right fore and the left hind are together called the right diagonal pair; the left fore and right hand, the left diagonal pair.

The *gallop* is marked by three beats and a period of suspension. Thus, for example, if the horse is galloping with the right lead, the first beat is marked by the left hind foot, the second by the nearly simultaneous placing of the right hind and the left fore, and the third beat by the placing of the right fore. If the horse be galloping with the left lead, the beats are right hind, left hind and right fore, left fore.

A horse is said to gallop with the *right lead* when the right fore is planted in front of the left fore and the right hind in front of the left hind. When the feet are planted in the inverse order the horse is said to gallop with the *left lead.*

A horse gallops *true* when he gallops with the right lead in turning to the right and with the left lead in turning to the left. He gallops *false* when he gallops with the left lead in turning to the right, or conversely.

A horse is *disunited* when he gallops with the right lead with his fore feet and with the left lead with his hind feet, or conversely.

The recruits, when at the gallop, need not concern themselves as to whether their mounts are galloping true or false; they should not, however, permit their horses to gallop disunited.

When a horse becomes disunited in his gallop the rider should bring him to the trot and then put him back into the gallop.

During riding-hall work the instructor should not insist that all the horses gallop true. Thus, when galloping on the track, if a few horses are seen to gallop false it is of no consequence. The instructor should bear in mind that the false gallop, occasionally used, is a beneficial exercise for the horse, causing him to acquire a handiness and sense of balance in making changes of direction that is most useful in drill, combat exercises, and cross-country riding.

The gallop departs are not taken up until the last period. Prior to teaching the gallop departs, should the instructor desire that the student take the gallop with a certain lead, the right for example, he directs the rider to ride his horse at the trot from the inside of the riding-hall ring, perpendicularly towards the track. Upon arrival at the track the recruit turns his horse sharply to the right, applies both legs with vigor, and forces the horse into the gallop. Another method of accomplishing the same result is for the recruit to take the trot on a circle to the right hand and then urge his horse into the gallop.

Occasionally, when the riders are at the gallop, the instructor will question them as to whether their own and other designated horses have the right or left lead.

The Speed of Gaits. In the military service it is essential for the rider to maintain certain rates of speed when at the walk, trot, and gallop.

The rate of the walk is 4 miles per hour, or 117 yards per minute. At the command 1. ***Forward,*** 2. ***MARCH,*** the regulation walk of miles per hour is taken and scrupulously maintained unless otherwise specially directed.

The rate of the trot is 8 miles per hour, or 235 yards per minute. At the command 1. ***Trot,*** 2. ***MARCH,*** the regulation trot of miles per hour is taken and scrupulously maintained unless otherwise specially directed. For the purpose of individual instruction in equitation the rate of trot may, at command, be reduced to 6 miles per hour. The command is: 1. ***Slow trot,*** 2. ***MARCH.*** When at the ***Slow trot*** the rider should sit down in the saddle; when at the ***Trot,*** he should rise to the trot.

The *maneuvering gallop* is at the rate of 12 miles per hour, or 352 yards per minute. It is called the regulation gallop. At the command 1. ***Gallop,*** 2. ***MARCH,*** the maneuvering gallop is taken and held unless otherwise specially directed.

The *Extended gallop* is at the rate of 16 miles per hour, or 469 yards per minute. It is taken at the command 1. ***Extended gallop,*** 2. ***MARCH.***

The *Canter* is at the rate of 8 miles per hour. It is used on occasion in connection with the instruction of recruits in riding and in the training of horses. It is taken at the command 1. ***Canter,*** 2. ***MARCH.***

Gaiting. Throughout instruction in equitation the instructor will avail himself of every favorable opportunity to impress upon the men the importance of knowing and maintaining the proper rates of speed at the various gaits. In this connection the example set by the instructor, especially when leading the men across country, will have a strong influence in the right direction. Of all the gaits it is of special importance that the men know the 8-mile-per-hour trot.

The instructor will have a gaiting course of 1 mile length marked off and frequently practice the men individually over this course at the regulation walk,

trot, and gallop. Occasionally selected individuals may be required to lead the squads to which they belong through the gaiting course at a prescribed gait, the instructor and his assistants keeping time and noting errors.

Mounted Exercises.

To Leave Ranks. The instructor causes the students to form line and then calls upon them individually to ride their horses out of ranks. As each man's name is called he rides his horse out of ranks to a point or locality designated by the instructor.

In case a rider's horse resists leaving rank the rider takes the reins in both hands, gathers his horse, inclines his weight slightly forward, applies the right leading rein and the right leg so as to cause the horse to move forward and to the right oblique. When the horse has taken two or three steps forward and to the right oblique the rider changes the aids to the left leading rein and left leg so as to cause the horse to move to the left front. Continuing the above-described process, the rider causes the horse to move on a zigzag course towards the designated point or locality.

In riding a difficult horse out of ranks it is essential that the rider not permit the reins to become slack when inclining his body forward. Also, when using the leading rein on one side the rider must not permit the opposite rein to become slack. The reins are kept taut and the horse up on the bit.

Practicing, Individually, the Charge at Full Speed. The instructor now prepares the troopers to participate in the charge in line. This is accomplished by practicing the troops in galloping, individually and at full speed, over a distance of 60 to 75 yards.

In charging, the trooper bends his body forward and pushes his feet home in the stirrups. He gives his horse his head, if necessary, a touch on the spur, and holds him in the direction indicated.

Having charged the distance prescribed by the instructor, the trooper reduces the speed progressively that is, he brings his horse to the regulation gallop, then to the trot, then to the walk. To reduce the speed abruptly is unnecessary and inadvisable during instruction. It may be practiced later on when the trooper is sufficiently proficient in the use of the aids to stop suddenly without injuring the mouth or spoiling the temper of his horse.

In order not to fatigue the horses by repeated charges, the individual charge should be practiced only a few minutes during any one instruction period. It should always be executed on a track or piece of ground especially adapted to this work; that is, open, level ground where the footing is neither too hard nor too soft.

Object of Riding-Hall Exercises. The object of the purely riding-hall exercises prescribed is to afford the rider frequent opportunity to apply the principles previously stated. It is evident, therefore, that these riding-hall exercises are merely the means to an end. The end to be obtained is that the rider shall be able to control his horse out of doors, alone or in ranks, and under both favorable and unfavorable conditions.

To March on a Circle. The riders being on the track, at the command ***ON A CIRCLE,*** the designated leader, followed by the other riders, rides on a circle between the two tracks. At the command ***TAKE THE TRACK*** the leader takes the track to the hand toward which he is marching and is followed by the other riders.

Work by Threes. The riders being on the track with 4 feeet distance from head to croup, as the head of the column passes across an end of the riding hall the instructor commands: 1. ***By threes by the right (or left) flank,*** 2. ***MARCH.*** At the command ***MARCH*** the first three riders, at the head of column execute ***By the right flank*** and proceed straight down the length of the hall. They are

followed by each successive three in the column, who turn to the flank on the same ground. In each three the center rider is the guide. The center rider of the leading three is also the guide of the squad, the guides in rear regulating upon him. Upon arrival at the opposite end of the hall the leading three take the track to the hand to which they were marching before the movement began.

The movement is continuous until the instructor commands: ***TAKE THE TRACK.***

When the riders are disposed by three in the riding hall the instructor should cause them to halt, to move forward, to change gaits, to turn to the right flank, and to execute the right or left about. Each rider, in addition to executing all movements correctly, should be required to preserve his place, checkerboard fashion, with reference to his comrades. Thus the conditions of the exercises demand of the trooper increased alertness combined with an effective use of the aids.

Cross-Country Riding. The instruction in cross-country riding already prescribed is continued during the third period. However, the trot and gallop will be used more frequently and the route selected may be over ground affording steeper slopes. Natural obstacles such as heavy brush, woods, small ditches, and streams may be crossed, but fences, hurdles, and all other artifical obstacles are avoided.

Marching under Field Conditions. Students should now be in condition to take a practice march over a distance of approximately 15 miles.

CHAPTER VII.

FOURTH PERIOD.

Program of Instruction (continued). During the fourth period the horses are equipped with a bit and bridoon and the men habitually wear spurs.

When time is available two lessons per day are advisable, each lesson being of approximately one and one-half hours duration. When time for two daily lessons is not available the work may be covered by one lesson per day of not less than two hours duration, exclusive of the time required to care for animals and equipment.

The men ride without stirrups during the first 15 minutes of each day's instruction, using the snaffle bit alone, the curb bit hanging loose. The first half hour is devoted entirely to those exercises which tend to improve and confirm the seat, namely, the suppling exercises and the gymnastics of the jump. During the remainder of each day's instruction the men habitually ride with stirrups.

The primary objective of the instruction during the fourth period is constantly to improve the seat of the rider and his use of the aids. To accomplish this task the instructor utilizes all the exercises of preceding periods in addition to the following exercises.

Mounted Exercises.

Broken Lines. The broken-line exercise consists of departures from and returns to the long side of the hall by successive obliques. The riders being on the track without regard to distance, at the walk, trot, or gallop, the command is: ***BROKEN LINES, ONCE (TWICE, OR THREE TIMES) IN THE LENGTH OF THE RIDING HALL.*** As each trooper enters the long side he leaves the track by an oblique and, having marched the proper distance, returns to the track by another oblique. This is repeated the number of times specified; at the other end of the long side he retakes the track.

This exercise in the riding hall has for its object to teach the rider how to make rapid changes of direction when out of doors.

Serpentines. The serpentine consists of successive abouts executed by the rider directing his horse on a sinuous course. The command is: ***SERPENTINE.*** Being on the track without regard to distance, at the walk or slow trot, as each rider reaches the middle of the short side designated by the instructor he leaves the track and follows by a continuous succession of abouts, a serpentine course to the far end of the riding hall. Upon reaching the opposite end of the riding hall each rider takes the track to the same hand as that on which he marched before the movement began.

Riders should execute broken lines and serpentines as individuals; they should not follow closely in the trace of the man in front. The riders being thus disposed without regard to distance, each turn is made by the horse in exact obedience to the aids as applied by the rider.

Circling Individually. The riders being on the track without regard to distance, at the walk, slow trot, or canter, at the command ***Individual circle to the right (or left),*** each rider gathers his horse. At the command ***MARCH,*** each rider describes a complete circle tangent to the track and retakes the track at the point where he left it. The radius of the circle should be 2 yards at the walk, 4 yards at the slow trot, and 6 yards at the canter.

Each rider, without reference to any other rider, rides his horse with great exactness on the circle. He should endeavor to use the aids correctly in maintaining the speed and in controlling the direction of the horse.

The Half Turn. The half turn consists of an about followed by an oblique. Being in the track to the right (or left) hand, at the walk, slow trot, or canter, at the command ***Half turn*** each rider gathers his horse. At the command ***MARCH*** each rider executes a right about and then by the right oblique regains the track. The about should be made on the arc of a circle whose radius is 2 yards at the walk, 4 yards at the slow trot, and 6 yards at the canter. At the moment the horse starts the right about the rider increases the action of the left leg and left bearing rein, thus causing the horse to turn slightly on the haunches.

This movement being a turn slightly on the haunches, should be much practiced, first at the walk and slow trot and later at the canter. This exercise is of especial value when executed at a collected canter because it teaches the rider how to turn quickly to the right (or left) about at the gallop out of doors.

The Figure of 8. The riders being on the track without regard to distance, at the walk, trot, or gallop, at the command ***Individual figures of 8*** each rider

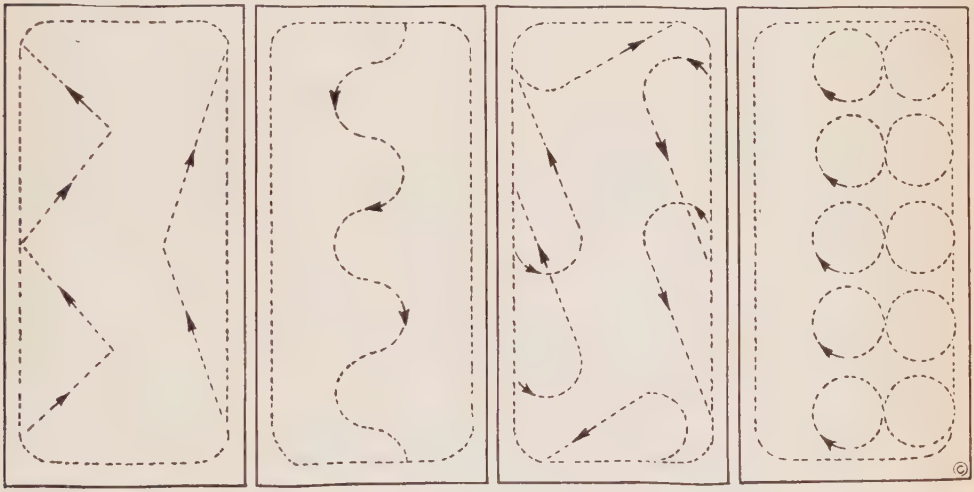


PLATE 21. Broken Lines. PLATE 22. Serpentines. PLATE 23. Half Turn. PLATE 24. Figures of 8.

gathers his horse. At the command *MARCH* each rider directs his horse on such a course as to describe a figure of 8, the figure being perpendicular to the track and its lower loop tangent to the track.

In the beginning the figure of 8 described by each rider should be of large dimensions. Later, as the riders become more skillful in the use of the aids, the dimensions of the figure are gradually reduced until finally all arcs are described on a radius of 2 yards at the walk, 4 yards at the trot, and 6 yards at the gallop.

Dimensions of Artificial Obstacles. Obstacles for jumping are of two classes: Broad jumps are those which require a leap of breadth only, such as ditches, water jumps, etc.

High jumps are those which require a leap in height, such as hedges, fences, walls, etc.

The dimensions of obstacles are increased in proportion to the progress of the riders; very moderate at first, they should be limited eventually to 8 feet for broad jumps and 3 feet for high jumps. Artificial obstacles should have sufficient width of front to prevent the horses from avoiding them easily.

Cross-Country Riding. The instruction in cross-country riding is continued in the same spirit throughout the remainder of the course. New routes across country should be sought of a nature to add to the rider's difficulties, thus presenting to him tests gradually increasing in interest and severity. Artificial

obstacles from 3 to 5 feet in width or from 1½ to 2½ feet in height should be provided so as to be encountered conveniently enroute.

Horses should not be tempted to sudden refusals, thereby bringing about unnecessary falls and accidents among the riders. Accordingly, all artificial obstacles should be quite long—the longer the better. Moreover, to horses and men alike, a long obstacle seems low, a short obstacle high.

Obstacles encountered should be approached calmly; that is, there should be entire freedom from undue spurts of speed, rushing, or pulling. The riding is not good if the horses are excited and if the riders have to resort to harsh and undue feats of strength in order to hold them down to the gait prescribed. Such exhibitions show poor management upon the part of the instructor, indicating that he has neglected to practice the men sufficiently at the slower gaits or has increased too quickly the height of the obstacles.

A new feature—that of moving across country by bounds from cover to cover—is introduced at this time. Each squad is organized as a patrol and directed to proceed at a certain rate over a specified route across country. While so moving the squads are directed to take advantage of all available cover from assumed hostile aerial and ground observation.

Marching Under Field Conditions. Toward the end of the fourth period the students may be taken on a practice march similar to that prescribed for the second period, except that the distance marched will be approximately 20 miles. This march and all subsequent marches should be conducted under an assumed tactical situation, requiring the students to be organized as a large patrol, as the support of an advance guard, a rear guard, flank guard, etc.

CHAPTER VIII.

FIFTH PERIOD.

Program of Instruction (continued). During this period the men and horses are equipped the same as for the preceding instruction period.

When time is available, two lessons per day are advisable, each lesson being of approximately one and one-half hours duration. When time for two daily lessons is not available the work may be covered by one lesson per day of *not less* than two hours duration, exclusive of the time required to care for animals and equipment.

During this period the instructor will utilize the exercises employed in the four preceding periods and, in addition, those which follow.

Mounted Exercises.

Passage to the Right or Left When at the Halt. The purpose of this exercise is to teach the rider how to close his horse to the right or left when in ranks at the halt.

The instructor causes the students to form line, with approximately 2 yards interval between horses. He then commands: 1. ***Passage to right (left),*** 2. ***MARCH.*** At the preparatory command each man gathers his horse. At the command of execution each man causes his horse to move to the right (left) without gaining distance to the front. To effect this movement the horseman employs the left (right) bearing rein and the left (right) leg. Any tendency of the horse to move forward is checked by increasing the tension on the reins. The rider demands only a few steps by the horse in the desired direction before relaxing the aids and stroking the horse on the neck. The exercise is repeated until the instructor commands ***HALT.***

The instructor gives only so much practice in this exercise as is necessary to enable the recruits to align their horses when in ranks at the halt.

The Gallop Departs. The beginner should, by the end of his course in equitation, know how to make his horse take the gallop *from the trot* with either lead desired.

The horse being at a slow trot on a circle or *at the end* of a turn, to cause the horse to take the gallop with the right lead the rider employs the right bearing rein just in front of the withers and the left direct rein (or of opposition). At the same time the rider inclines his weight slightly to the left rear, applies the left leg vigorously at the rear edge of the girth, the right leg vigorously on the girth, and pushes the horse into the gallop. At the moment the horse springs into the gallop the rider inclines his weight forward in order to assist the horse.

The effect of the right bearing rein is to weight the horse's left foreleg and induce him to extend or advance the right foreleg. When applied lightly this rein also causes the horse to bend his head at the poll slightly to the right, thus enabling him to see the ground on which he is to move.

The effect of the left direct rein is to support the action of the right bearing rein, restrain the left foreleg, and prevent the horse's neck from bending to the right.

The effect of shifting the rider's weight to the left rear is to weight and thereby restrain the forward movement of the left hind leg and at the same time free the right foreleg for movement to the front.

The effect of the rider's left leg, due to its position, is more powerful than the effect of his right leg, causing the haunches of the horse to be moved slightly to

the right. The action of the rider's right leg prevents the horse from shifting his haunches too far to the right. The vigorous action of both of the rider's legs provides the necessary impulse to cause the horse to take the gallop.

The gallop with the left lead is secured in a similar manner by converse application of the aids.

The change of lead while *at the gallop* is a very difficult exercise and is, furthermore, of no practical utility to the mounted soldier in ranks. For the two reasons just stated, this exercise will *not* be practiced.

The About on the Haunches. The about on the haunches *at the halt* is of no utility and should not be practiced. In executing this movement it should be borne in mind that the faster the horse is moving the more he engages his haunches under him in order to slow up and make the turn.

By utilizing the about, circling individually, the half turn, and the figure of eight exercises at the walk, the trot, and the canter, the rider is progressively prepared for executing the about on the haunches. In executing the above-mentioned preparatory exercises the rider is given much practice in making the turns involved, now with the horse held straight on the curve, now with his haunches held slightly to the inside of the curve. In addition to these preparatory exercises the rider is practiced in coming to a halt from the walk, the trot and the canter.

The rider is next practiced in combining the halt and turn into one exercise,—the about on the haunches. This exercise is practiced first at the wal, next at the trot, and finally at the gallop. In executing this exercise the rider moves on a straight course, at the gait indicated, until he arrives at a point previously designated by the instructor. Here he executes a right (or left) about on an arc the radius of which is as short as he can make it. The rider uses his legs well back and low in order to secure his seat solidly in the saddle. He applies the reins of opposition and the weight in combination in order to slow up his horse and then uses the left bearing rein, the weight, and the left leg in order to whirl his horse to the right-about on the haunches. Having completed the about, the rider returns to the starting point at the indicated gait. The left-about on the haunches is executed in a similar manner, employing the right bearing rein, the weight, and the right leg in making the turn. In practicing this exercise the rider turns to the right-about if his horse is leading right and to the left-about if his horse is leading left.

In executing the about on the haunches the instructor emphasizes the importance of calmness and obedience on the part of the horse. Exactness of step or posture are not so important as swiftness and brilliancy of action. When properly executed this movement finds ready and useful application at drill and in individual mounted combat.

Swimming Horses. The men who can not swim are first taught how to swim. When this has been accomplished the men are given individual instruction and practice in swimming their horses. In case time is not available for teaching those men who can not swim, how to swim, only those men who can swim are given instruction and practice in swimming with their horses.

Prior to swimming his horse the rider removes all the equipment from his mount except the halter, the bridle headstall, the snaffle bit, and the snaffle reins. He then ties a knot in the reins so that when the knot rests in front of the withers the reins will not sag down and become entangled in the horse's front feet. As a further precaution the throatlatch is unbuckled, brought around underneath the reins and again loosely secured.

The rider now mounts his horse and, preceded by an experienced soldier, if available, rides his horse into the stream. When the horse gets into deep water the rider slips off his back on the *downstream* side and holds on to the horse by grasping his neck just in front of the withers with the nearest hand. The rider lies flat in the water near the surface and guides his horse by splashing water

against his head or by pulling *very gently* on the bridle rein with the hand farthest away from the horse. In so using the rein the rider grasps it near the bit and uses it entirely as a leading rein, being careful not to exert any rearward pressure. Any backward pull on the rein is liable to cause the horse to throw up his head and turn over backward. The rider releases the rein the moment it has served its purpose.

If the current is strong the rider heads his horse at an angle of about 45° against it to avoid being carried too far downstream.

In case of difficulty the soldier releases his hold on the horse's neck and grasps hold of the tail. Under no circumstances must the soldier grab his horse about the head or attempt to sustain himself by the reins.

Marching Under Field Conditions. Toward the end of this period the students may be taken on a practice march similar to that prescribed for the fourth period, except that the distance covered should be approximately 25 miles.

Riding Hall Customs.

It is apparent that when several riders are working horses in a small inclosure, such as a riding hall, unless each shows consideration for the rights of his fellow riders, annoyance, confusion and even serious accidents may occur. Accordingly, in all well conducted riding halls it becomes necessary to enforce certain rules of conduct. It may not be amiss to include here the following customs and rules of etiquette observed in military riding halls.

1. When the riding hall is being used according to a published schedule, be discreet about asking to enter if your presence might interfere with or annoy those occupying it.

2. Call ***DOOR*** loudly enough to be heard anywhere in the hall, and then wait for the reply ***COME*** before opening the door or entering. In the absence of an attendant at the door, be sure to close it when entering; if the hall is occupied, close the door when departing. Enter promptly when the door is opened for you and move at once toward the center of the hall, looking sharply about to avoid getting in the path of some one who may not be able to avoid you. Enter either mounted or dismounted; if dismounted, move at once to that part of the hall least occupied, usually the center, and then mount.

3. After mounting and while warming up your horse at slow gaits, remain off the track and avoid those moving at faster gaits.

4. If for any reason you wish to halt, move first toward the center of the hall.

5. Avoid blocking the track while talking to persons in the gallery or outside.

6. Keep to your right in passing all riders approaching from the opposite direction.

7. Keep to the side that is away from the wall in passing all riders going in the same direction you are.

8. Do not stop nor turn sharply without first looking behind you to see if the way is clear.

9. If someone is improperly blocking your way, call ***TRACK*** loudly enough to be distinctly heard.

10. If there is jumping in progress, it is inconsiderate of you to get in such a position as to cause the person jumping anxiety or fear. The one jumping should not be expected nor required to look out for others.

11. Horses led in the hall for exercise should be led on the side next to the wall to prevent them from whirling and kicking passers-by.

12. Unless occasion demands, lounging should not be permitted in a crowded riding hall. This applies as well to any other form of dismounted exercise with mean, resisting, or vicious horses.

13. Manage your horse so as not to be a nuisance to others. It is irritating to have some one ride up on your horses heels; the person who does so is also

in danger of being kicked. Do not ride your horse in such a manner as to irritate or excite other horses.

14. If riding to the left hand at increased gaits, stay on the outside track. If riding to the right hand at increased gaits, while others are moving in the opposite direction, stay on the inside track. If all are moving in the same direction, the outside track may be used while moving to the right hand.

15. Time your entrance into or departure from the riding hall so as to cause least inconvenience to others.

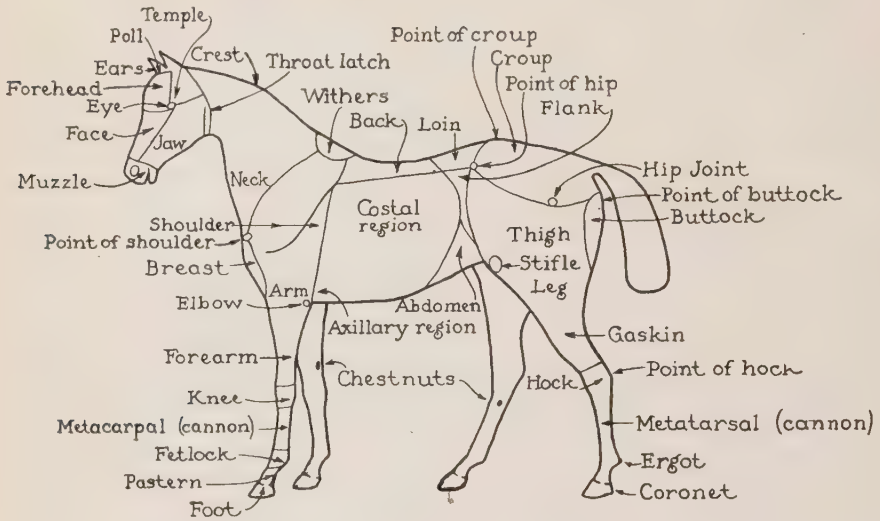


PLATE 25. Regions of the Horse.

16. The management of any riding hall is governed to some extent by local conditions; furthermore, not all halls are managed in the same way. It is best to adhere strictly to the rules published by proper authority.

Points of the Horse.

The names of the various regions of the horse will be found in Plate 25.

The following scale of points for judging light horses may be found useful.

Judging Light Horses.

SCALE OF POINTS

	Weight
General Appearance 12	
Height. Proper height for class or purpose for which used.	
Weight. Suitable weight for class or purpose for which used.	
Form. Symmetrical, smooth, stylish	4
Quality. Bone clean, dense, cannons, broad and flat, tendons and joints sharply defined, skin and hair fine, refinement and finish throughout	4
Temperament. Alert and active, disposition good	4
Head and Neck 8	
Head. Size and dimensions in proportion, clear-cut features, straight face line, wide angle in lower jaw	1
Forehead. Broad, full	1
Eyes. Prominent, large, full, bright, clear, lid thin	1
Ears. Medium size, pointed, set fairly close, carried alert and erect	1
Muzzle. Fine, nostrils large, lips thin	1
Neck. Long, supple, well crested, not carried too high, throat-latch fine well cut out, head well set on	3
Forequarters 20	
Shoulders. Long, sloping and muscular	3
Arms. Short, muscular, approaching upright rather than horizontal position	1

Forearms. Long, wide, muscular	1
Knees. Straight, wide, deep, strongly supported	2
Cannons. Short, broad, flat, tendons sharply defined, set well back	2
Fetlocks. Wide, straight, strong	1
Pasterns. Long, sloping (45-degree angle with floor or ground) smooth, strong	2
Feet. Large, round, uniform, straight, slope of wall approximately parallel with slope of pastern, sole concave, bars strong, frog large, elastic, heels wide, full, horn dense, smooth	4
Legs. Direction viewed from in front, perpendicular line dropped from the point of the shoulder should divide equally the knees, cannon, pastern and foot; viewed from side, a perpendicular line dropped from center of elbow joint should fall on center of knee, fetlock joint and back of foot	4
BODY 12	
Withers. High, well finished at top, extending well back	2
Chest. Medium width, deep	3
Ribs. Well sprung, long close	2
Back. Short, straight, strong, broad	2
Loin. Short, broad, strongly coupled	2
Flank. Deep, full, long, low underline	1
HINDQUARTERS 30	
Hips. Broad, round, smooth	2
Croup. Long, level, round, smooth	2
Tail. Set high, well carried	2
Thighs. Full, muscular	2
Quarters. Full, deep, well muscled	2
Gaskins. Broad, muscular	2
Hocks. Well directed, wide, point prominent, deep, clean cut, smooth and well supported	5
Cannons. Short, broad, flat, tendons sharply defined, set well back	2
Fetlocks. Wide, straight, strong	1
Pasterns. Long, sloping (50 degree angle with floor or ground), smooth, strong	2
Feet. Large, round, uniform, slope of wall approximately parallel with slope of pastern, sole concave, bars strong, frog large and elastic, heels wide, full, horn dense, smooth	4
Legs. Direction, viewed from the rear a perpendicular line dropped from the point of the buttock should fall on the center of the hock, cannon, pastern and foot; viewed from the side this same line should touch the point of the hock and the back of the fetlock	4
GAITS 18	
Walk. Rapid, flat footed, free stride, straight and true	6
Trot. Free, springy, square, going well off hocks, not extremely high	6
Canter. Slow, collected, either lead, no cross canter	6
TOTAL 100	100

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CAVALRY WEAPONS.

INTRODUCTION.

The action of cavalry in combat is characterized by mobility, fire power and shock. Accordingly, its weapon must be readily and rapidly transported, capable of delivering intense and effective fire, and suited to the impact of mounted or dismounted collision with the enemy. The primary cavalry weapons, in the order of their importance, are the rifle, the pistol, and the saber. The principal weapon of the individual trooper for dismounted combat is the rifle. The pistol and saber are weapons for close combat or shock, the pistol for either mounted or dismounted action, the saber for mounted action only. The machine rifle, in the troop, is an automatic weapon, individually operated, characterized by ease of transportation and great fire power. Of somewhat less mobility, especially dismounted, but capable of delivering a much greater volume of sustained fire, the machine gun in the regiment and larger units is a weapon of tremendous power. Armored cars, armed principally with the machine gun, increase cavalry mobility, radius of action and fire power.

The weapons used by cavalry, the units in which found, the method of transport and the tactical uses of each are shown in the table on following pages:

Summary of Cavalry Weapons

Weapons	Units in Which Found	Method of Transport	Tactical Use
Rifle	a. Rifle Troop. Carried by all enlisted men except: first sergeant; 2 buglers; and 1 corporal, 1 gunner and 2 privates (ammunition carriers) of each machine-rifle squad.	Carried in scabbard attached to soldier's saddle, except by wagoners. Wagoner's rifle is carried in scabbard attached to his wagon.	Dismounted combat.
	b. Machine-Gun Troop. Carried by all enlisted men except: first sergeant; instrument sergeant; 3 corporals (liaison agents); 2 buglers; 3 platoon sergeants; 8 section sergeants; 15 corporals (squad leaders); 18 privates (gunners); 1 private (driver of instrument pack); and 24 privates (basic).	Carried in scabbard attached to soldier's saddle, except by wagoners. Wagoner's rifle is carried in scabbard attached to his wagon.	Protection of train.
	c. Headquarters Troop, Cavalry Regiment. Carried by all enlisted men below the grade of staff sergeant except: 1 sergeant (bugler); 2 sergeants (clerks); 3 corporals (buglers); 1 corporal (clerk); 14 privates (clerks); 1 private (stenographer); and 4 sergeants, 4 corporals and 16 privates of the radio and panel section.	Carried in scabbard attached to soldier's saddle.	Used by reconnoitering parties and for protection of lead horses. Protection of train.
	d. Headquarters Troop, Cavalry Brigade. Carried by all enlisted men below the grade of staff sergeant except: 1 sergeant, 1 corporal, and 12 privates in radio and panel section; 1 sergeant, 2 corporals, and 12 privates in wire section; and 2 privates, (chauffeurs), in message center section.	Carried in scabbard attached to soldier's saddle.	Dismounted combat.

Weapons	Units in Which Found	Method of Transport	Tactical Use
	e. Armored Car Squadron. Carried by all enlisted men in squadron headquarters. 2 rifles are carried as additional armament in each of the 36 armored cars.	Carried in armored and cross country cars.	For emergency use.
Machine Rifle (To be replaced by the Cavalry Light Machine Gun.)	a. Machine-Rifle Platoon of the Rifle Troop (2 machine rifles to each of 4 squads).	Each gun with 900 rounds of ammunition carried on a pack horse. 4 additional pack horses, each carrying 1200 rounds of ammunition are provided (for each machine rifle platoon).	Dismounted combat and for supporting mounted attack.
Pistol	a. Carried by all officers and enlisted men of cavalry.	Carried in holster attached to belt.	Mounted combat and for self defense.
Saber	a. Rifle Troop. Carried by all officers and by all enlisted men except: 3 cooks; five wagoners; and members of the machine rifle platoon.	Attached to saddle.	Mounted combat and for ceremonies.
	b. Squadron Headquarters. Carried by all personnel.	Attached to saddle.	Mounted combat and for ceremonies.
	c. Headquarters and Headquarters Troop, Cavalry Regiment. Carried by all officers and by all non-commissioned officers above the grade of corporal (except personnel sergeant major and the sergeant clerk).	Attached to saddle.	Mounted combat and for ceremonies.
	d. Headquarters and Headquarters Troop, Cavalry Brigade. Carried by all officers and by all non-commissioned officers above the grade of corporal.	Attached to saddle.	For ceremonies.
Gun Machine, Cal. 30	a. Machine Gun Troop, Cavalry Regiment. (1) 12 for general use.	Each gun with 250 rounds of ammunition carried on a pack horse. 36 additional pack horses each carrying 1500 rounds of ammunition are provided.	Used in combat for support and protection of organizations to which they may be assigned or attached (or ordered to support).
	(2) 4 for antiaircraft work.	Carried in cross-country cars.	Protection from hostile aviation of command to which assigned or attached.
	b. Armored Car Squadron. 12 per troop (to each of three troops).	One mounted on each armored car.	The machine gun is the principle weapon used by the armored car in combat (when necessary to enable it to carry out its missions).
Gun 37 mm.	Machine Gun Troop, Cavalry Regiment. 3 per troop.	The gun, tripod, and 112 rounds of ammunition are carried on 3 pack horses.	For combat against machine gun nests, buildings, and armored cars.
Sub-Machine gun	Armored Car Squadron. 12 per troop (to each of three troops).	1 carried in each armored car.	For combat at short range when required in connection with the mission assigned the armored car.

The student is referred to the course in Rifle Marksmanship, appearing elsewhere in this text, for information concerning the basic weapon of all combat arms, the rifle.

CHAPTER I.

THE AUTOMATIC PISTOL.

The Automatic Pistol, Caliber .45, Model 1911, is carried by all officers and enlisted men of cavalry. The cavalryman should be thoroughly familiar with the pistol and be competent to operate and care for it.

General Data.

Weight. 2 pounds, 7 ounces.

Trigger Pull. 6 to 7½ pounds.

Total Length. 8.593 inches.

Barrel. Length, 5.025 inches. Diameter of bore (caliber), 0.445 inches.

Rifling.

Grooves. Number, 6. Width, 0.1522 inch. Depth, 0.003 inch.

Lands. Width, 0.072 inch.

Twist. One turn in 16 inches, left handed.

Front sight above axis of bore, 0.5597 inch.

Muzzle Velocity. 802 feet per second.

Maximum Range. About 1600 yards, when fired at an elevation of 30 degrees.

Rate of Fire. Twenty-one shots in twelve seconds and twenty-one aimed shots at twenty-five yards in twenty-eight seconds.

Drift. Due to the twist of the rifling the bullet drifts or deviates to the left. This drift is more than neutralized, however, by the pull of the trigger when the pistol is fired from the right hand.

Penetration. At twenty-five yards the bullet will penetrate various materials as follows: White pine, 6 inches: moist loam, 10 inches; dry sand, 8 inches.

Ammunition. The cartridge case is cylindrical and made of brass. The primer consists of a cup containing primer composition, a paper disk and an anvil with two vents to the powder charge. The bullet is cylindrical, has a core of lead and tin composition inclosed in a jacket of gilding metal or cupro-nickel. It weighs 230 grains. In packing, cartridges are packed in paste board boxes containing 20 cartridges each. The magazine will hold seven cartridges.

Mechanical Operation.

Method of Operation. A loaded magazine is placed in the handle and the slide drawn full back and released, thus bringing the first cartridge into the chamber (if the slide is open, push down the slide stop to let the slide go forward). The hammer is thus cocked and the pistol is ready for firing.

If it is desired to make the pistol ready for instant use and for firing with the least possible delay the maximum number of shots, draw back the slide, insert a cartridge by hand into the chamber of the barrel, allow the slide to close, then lock the slide and the cocked hammer by pressing the safety lock upward, and insert a loaded magazine. The slide and hammer being thus positively locked, the pistol may be carried safely at full cock, and it is only necessary to press down the safety lock (which is located within easy reach of the thumb) when raising the pistol in firing position.

The grip safety is provided with an extending horn, which not only serves as a guard to prevent the hand of the man firing from slipping upward and being struck or injured by the hammer, but also aids in accurate shooting by keeping the hand in the same position for each shot; and, furthermore, permits the lower-

ing of the cocked hammer with one hand by automatically pressing in the grip safety when the hammer is drawn slightly beyond the cocked position. In order to release the hammer, the grip safety must be pressed in before the trigger is pulled.

Safety Devices. It is impossible for the firing pin to discharge or even touch the primer, except on receiving the full blow of the hammer.

The pistol is provided with two automatic safety devices.

(1) The (automatic) disconnector which positively prevents the release of the hammer unless the slide and barrel are in the forward position and safely interlocked; this device also controls the firing and prevents more than one shot from following each pull of the trigger.

(2) The (automatic) grip safety at all times locks the trigger unless the handle is firmly grasped and the grip safety pressed in.

The pistol is in addition provided with a safety lock by which the closed slide and the cocked hammer can be at will positively locked in position.

Operation in Detail. The magazine may be charged with any number of cartridges from one to seven.

The charged magazine is inserted in the handle and the slide drawn once to the rear. This movement cocks the hammer, compresses the recoil spring, and,

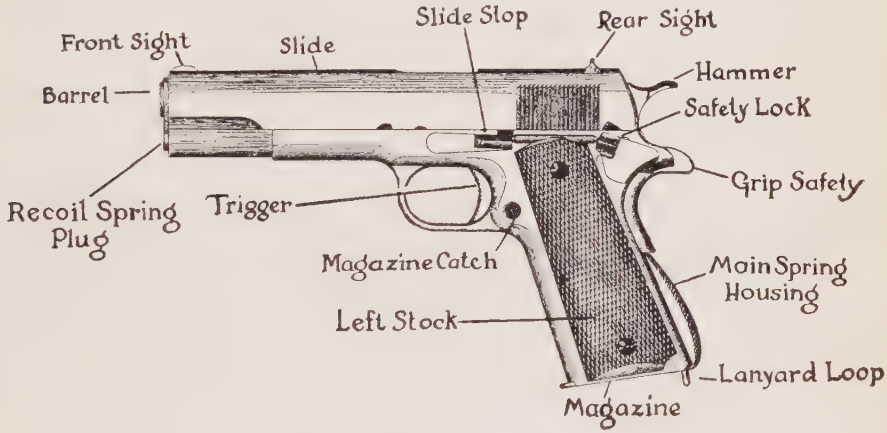


PLATE I. Automatic Pistol, Caliber .45, Model 1911.

when the slide reaches the rear position, the magazine follower raises the upper cartridge into the path of the slide. The slide is then released and, being forced forward by the recoil spring, carries the first cartridge into the chamber of the barrel. As the slide approaches its forward position, it encounters the rear extension of the barrel and forces the barrel forward; the rear end of the barrel swings upward on the link, turning on the muzzle end as on a fulcrum. When the slide and barrel reach their forward position they are positively locked together by the locking ribs on the barrel and their joint forward movement is arrested by the barrel lug encountering the pin on the slide stop.

The pistol is then ready for firing.

When the hammer is cocked, the hammer strut moves downward, compressing the mainspring, and the sear, under action of the long leaf of the sear spring, engages its nose in the notch on the hammer.

In order that the pistol may be fired the following conditions must exist: The grip safety must be pressed in, leaving the trigger free to move; the slide must be in its forward position, properly interlocked with the barrel, so that the disconnector is held in the recess on the underside of the slide under the action of the sear spring, transmitting in this position any motion of the trigger to the

sear; the safety lock must be down, in the unlocked position, so that the sear will be unlocked and free to release the hammer, and the slide will be free to move back.

On pulling the trigger the sear is moved and the released hammer strikes the firing pin which transmits the blow to the primer of the cartridge. The pressure of the gases generated in the barrel, by the explosion of the powder in the cartridge, is exerted in a forward direction against the bullet, driving it through the

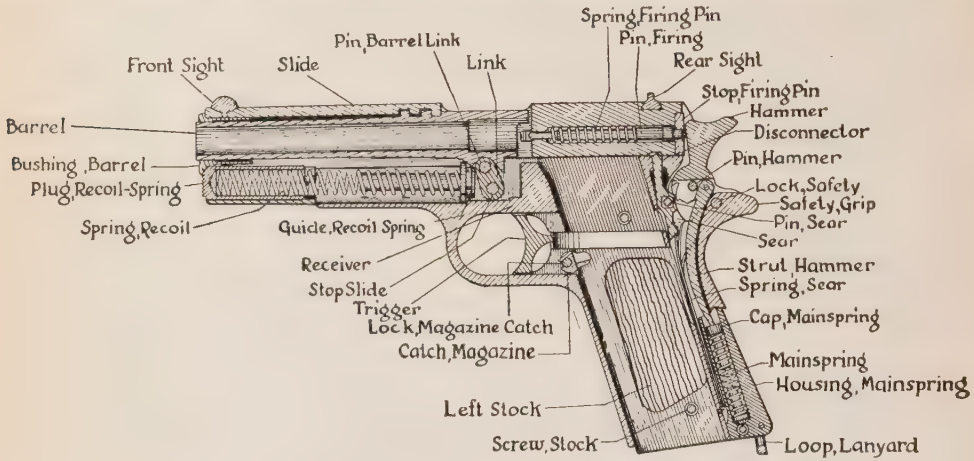


PLATE 2. Automatic Pistol, Showing Component Parts, Assembled.

bore, and in a rearward direction against the face of the slide, driving the latter and the barrel to the rear together. The downward swinging movement of the barrel unlocks it from the slide, and the barrel is then stopped in its lowest position. The slide continues to move to the rear, opening the breech, cocking the hammer, extracting and ejecting the empty shell and compressing the recoil spring until the slide reaches its rearmost position, when another cartridge is

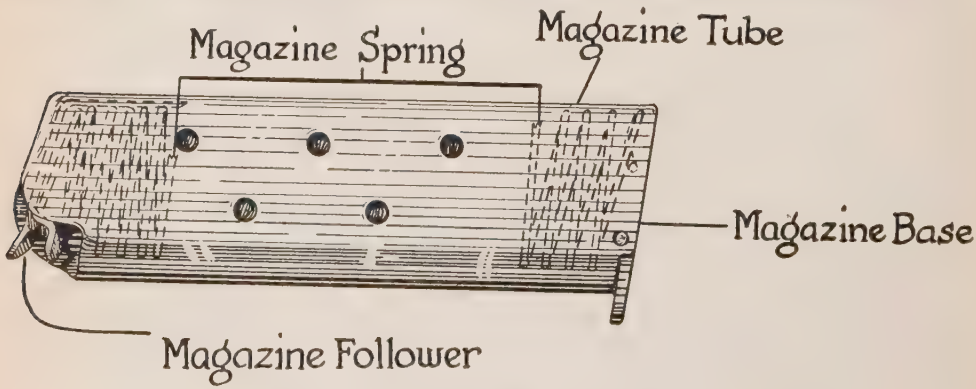


PLATE 3. Magazine.

raised in front of it and forced into the chamber of the barrel by the return movement of the slide under pressure of the recoil spring.

The weight and consequently the inertia of the slide, augmented by those of the barrel, are so many times greater than the weight and inertia of the bullet that the latter has been given its maximum velocity and has been driven from the muzzle before the slide and barrel have recoiled to the point where the barrel commences its unlocking movement. This construction, therefore, delays the

opening of the breech of the barrel until after the bullet has left the muzzle and therefore practically prevents the escape of any of the powder gases to the rear after the breech has been opened.

This factor of safety is further increased by the tension of the recoil spring and mainspring, both of which oppose the rearward movement of the slide.

While the comparatively great weight of the slide of this pistol insures safety against premature opening of the breech, it also insures operation of the pistol because, at the point of the rearward opening movement where the barrel is unlocked and stopped, the heavy slide has attained a momentum which is sufficient to carry it through its complete opening movement and prepares the pistol for another shot.

When the magazine has been emptied, the pawl-shaped slide stop will be raised by the magazine follower under action of the magazine spring into the front recess on the lower left side of the slide, thereby locking the slide in the open position, and serving as an indicator to remind the man firing that the empty magazine must be replaced by a charged one before firing can be continued.

Pressure upon the magazine catch quickly releases the empty magazine from the handle and permits the insertion of a loaded magazine.

To release the slide from the open position, it is only necessary to press upon the thumb piece of the slide stop, when the slide will go forward to its closed position, carrying a cartridge from the previously inserted magazine into the barrel and making the pistol ready for firing again.

To Dismount and to Assemble the Pistol.

Remove the magazine by pressing the magazine catch. Press the plug inward and turn the barrel brushing to the right until the plug and the end of the recoil spring protrude from their seat, releasing the tension of the spring. As the plug is allowed to protrude from its seat, the finger or thumb should be kept over it, so that it will not jump away and be lost. Draw the slide rearward until the smaller rear recess in its lower left edge stands above the projection on the thumb piece of the slide stop; press gently against the end of the pin of the slide stop, which protrudes from the right side of the receiver above the trigger guard, and remove the slide stop.

This releases the link, allowing the barrel, with the link and the slide, to be drawn forward together from the receiver, carrying with them the barrel bushing, recoil spring, plug, and recoil-spring guide.

Remove these parts from the slide by withdrawing the recoil spring guide from the rear of the recoil spring, and drawing the plug and the recoil spring forward from the slide. Turn the plug to the right to remove it from the recoil spring. Turn the barrel bushing to the left until it may be drawn forward from the slide. This releases the barrel, which, with the link, may be drawn forward from the slide, and by pushing out the link pin the link is released from the barrel.

Press the rear end of the firing pin forward until it clears the firing-pin stop, which is then drawn downward from its seat in the slide; the firing pin, firing-pin spring, and extractor are then removed from the rear of the slide.

The safety lock is readily withdrawn from the receiver by cocking the hammer and pushing from the right on the pin part or pulling outward on the thumb piece of the safety lock when it is midway between its upper and lower positions. The cocked hammer is then lowered and removed after removing the hammer pin from the left side of the receiver. The housing pin is then pushed out from the right side of the receiver, which allows the mainspring housing to be withdrawn downward and the grip safety rearward from the handle. The sear spring may then be removed. By pushing out the sear pin from the right to the left ride of the receiver, the sear and the disconnector are released.

To remove the mainspring, mainspring cap, and housing-pin retainer from the mainspring housing, compress the mainspring and push out the small mainspring-cap pin.

To remove the magazine catch from the receiver, its checkered left end must be pressed inward, when the right end of the magazine catch will project so far from the right side of the receiver that it may be rotated one-half turn. This movement will release the magazine-catch lock from its seat in the receiver, when the magazine catch, the magazine-catch lock, and the magazine-catch spring may be removed.

With the improved design of magazine-catch lock the operation of dismounting the magazine catch is simplified in that when the magazine catch has been pressed inward the magazine-catch lock is turned by means of a screw driver or the short leaf of the sear spring a quarter turn to the left when the magazine catch with its contents can be removed. The improved design will be recognized from the fact that the head of the magazine-catch lock is slotted.

The trigger can then be removed to the rear from the receiver.

The hammer strut or the long arm of the screw driver can be used to push out all the pins except the mainspring-cap pin, lanyard-loop pin, and ejector pin.

To assemble the pistol proceed in the reverse order.

It should be noted that the disconnector and sear are assembled as follows: Place the cylindrical part of the disconnector in its hole in the receiver with the flat face of the lower part of the disconnector resting against the yoke of the trigger. Then place the sear, lugs downward, so that it straddles the disconnector. The sear pin is then inserted in place, so that it passes through both the disconnector and the sear.

The sear, disconnector, and hammer being in place and the hammer down, to replace the sear spring, locate its lower end in the cut in the receiver, with the end of the long leaf resting on the sear; then insert the mainspring housing until its lower end projects below the frame about one-eighth of an inch, replace the grip safety, cock the hammer, and replace the safety lock; then lower the cocked hammer, push the mainspring housing home and insert the housing pin.

In assembling the safety lock to the receiver use the tip of the magazine follower or the screw driver to press the safety-lock plunger home, thus allowing the seating of the safety lock. It should be remembered that when assembling the safety lock the hammer must be cocked.

When replacing the slide and barrel on the receiver, care must be taken that the link is tilted forward as far as possible and that the link pin is in place.

Care and Cleaning.

Cleaning the Pistol. Careful, conscientious work is required to keep the automatic pistol in a condition that will insure perfect functioning of the mechanism and continued accuracy of the barrel. It is essential that the entire mechanism be kept clean and oiled to avoid jamming.

The magazines also require care to present rust or an accumulation of sand or dirt in the interior. They are easily dismounted for cleaning and oiling.

To clean the pistol after firing, remove the slide from the receiver and the barrel from the slide; this is usually all the dismounting required but, after prolonged firing, the extractor and firing pin should also be removed. When the pistol has been exposed to sand or water, it is necessary to dismount it completely for thorough cleaning and oiling. The details of dismounting the pistol have been given in the preceding paragraphs.

Care of the Bore. Briefly stated, the care of the bore consists in removing fouling resulting from firing and then coating the cleaned surface with a film of rifle oil (sperm oil) or rifle grease (cosmic) or a mixture of both, to prevent rust.

To prevent rust, it is necessary to clean and oil the barrel four or five times, at first daily, and finally with a three- or four-day interval between cleanings.

The chamber of the pistol is frequently neglected because it is not readily inspected. Care should be taken to see that it is cleaned as thoroughly as the bore. A roughened chamber decreases the rapidity of the fire and not infrequently causes shells to stick.

Precautions in the Care of the Pistol. After firing the pistol, never leave it uncleaned over night. The damage done is then irreparable.

Keep the pistol clean and lightly lubricated, but do not let it become gummy with oil.

Do not place the pistol on the ground where sand or dirt may enter the bore or mechanism.

Do not plug the muzzle of the pistol with a patch or plug; you may forget to remove it before firing, in which case the discharge may bulge or burst the barrel at the muzzle.

The pistol kept in a leather holster may rust, due to moisture absorbed by the leather from the atmosphere, even though the holster may appear to be perfectly dry. If the holster is wet and the pistol must be carried therein, cover the pistol with a thick coat of oil.

It is not necessary to remove the stocks in dismounting the pistol.

The hammer should not be snapped when the pistol is partially dismounted.

Never use a hammer in dismounting or assembling the pistol.

Care must be exercised to see that the disconnector is properly assembled to the sear.

In assembling the hammer pin and sear pin are inserted from the left side.

Never place the trigger finger within the trigger guard until it is intended to fire and the pistol is pointed toward the target.

Do not carry the pistol in the holster with the hammer cocked and safety lock on, except in an emergency.

If the pistol is so carried in the holster, cocked and safety lock on, the butt of the pistol should be rotated away from the body when withdrawing the pistol from the holster, in order to avoid displacing the safety lock.

The trigger should be pulled with the forefinger. If the trigger is pulled with the second finger, the forefinger extending along the side of the receiver is apt to press against the projecting pin of the slide stop and cause a jam when the slide recoils.

Care must be exercised in inserting the magazine to insure its engaging with the magazine catch.

Pressure must be entirely relieved from the trigegr after each shot in order that the trigger may re-engage with the sear.

To remove cartridges not fired disengage the magazine slightly and then extract the cartridge in the barrel by drawing back the slide.

Reasonable care should be taken to see that the magazine is not dented or otherwise damaged.

Never insert the magazine and strike it smartly with the hand to force it home, as this may spring the base or the inturning lips at the top. It should be inserted by a quick, continuous movement.

CHAPTER II.

THE CAVALRY SABER.

Description and Care. The Cavalry saber (Plate 4) has a blade more like a sword than a saber, being straight and tapering on both edges to a point. The blade is about 35 inches long and is made of tough steel. A large metal guard provides protection for the hand. The saber weighs 2 3/16 pounds, without the scabbard.

The blade of the saber should be kept free from moisture and dirt. After being wiped off with a soft cloth, all metal parts should be given a light coating of good mineral oil or rust-preventing compound. Small rust spots on the blade can be removed with crocus cloth or very fine emery cloth; but, in doing so, care must be taken to polish lengthwise of the blade. The saber scabbard should be kept dry and clean. Metal parts should we wiped occasionally with an oily rag.

Use of the Saber as a Weapon. The saber is solely a weapon of offense to be used by the trooper mounted. Accordingly, in all attacks with the saber the trooper must be taught to charge with great spirit, to disregard an opposing weapon, and to lunge at the right moment directly at his adversary's body. In

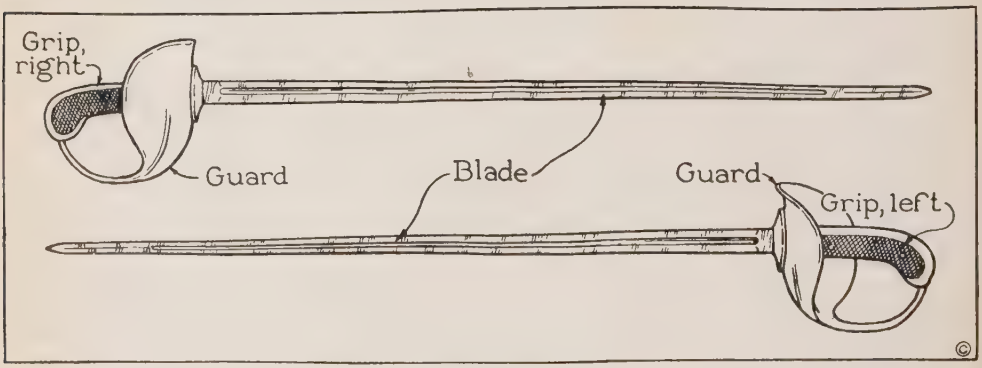


PLATE 4. The Cavalry Saber.

the vigor and rapidity of the attack, in the strength of his arm, and in the correct position of his body lie both the trooper's best protection against an opposing weapon and his greatest chance of success in overcoming an adversary. With the saber the attack is usually made in line and shock action is sought, especially against mounted cavalry. It should not be understood that the saber is invariably employed against mounted cavalry. If the enemy uses sabers his attack will usually be met by a saber charge; otherwise with the pistol attack. In a pistol attack, when his pistol jams or his pistol ammunition becomes expended, the trooper uses his saber.

Individual Instruction With the Saber.

For instructions with the saber, the troopers are formed, mounted, deployed at intervals and distances, at the halt.

The instructor demonstrates the various positions, movements and methods of attack.

Guard. Being at *Carry saber: GUARD;* at the command ***Guard*** carry the arm and saber to the front, the arm two-thirds extended, the saber and forearm

in a straight line and nearly horizontal, the back of the hand up, the edge of the blade to the right, the point at the height of the target, the blade and the entire arm in the same vertical plane. The grip of the saber is grasped with all the

PLATE 5. Position of Guard.

fingers of the hand, the thumb extending along the back of the grip so as to occupy the thumb groove.

The Lunges.

In all lunges as soon as the blade pierces the target the trooper quickly and without command resumes the Guard.

Being at the Guard: 1. ***Right front;*** 2. ***LUNGE.*** At the command ***Lunge,*** thrust the saber in the direction of the dummy's breast, rotate the arm so that the edge of the blade is upward, the arm and the blade extended in a straight line from the shoulder; then, without pause, bend the body vigorously forward and downward, support the weight of the body on the left forearm well forward on the horse's neck, keeping the right arm close to the head, the blade at the height of the eye and in the direction of the line of sight. In withdrawing the saber, rotate the arm and saber to the right until the fingernails are *up.*

Being at the Guard: 1. ***Left front,*** 2. ***LUNGE.*** At the command left front, carry the arm and blade to the left front, and turn the head and eyes in the same direction. At the command ***Lunge,*** thrust the saber in the direction of the dummy's breast, rotate the arm to the left so that the edge of the blade is up, and at the same time turn the body to the left at the waist so as to bring the shoulders, arm, and blade in line; then, without pause, bend the body vigorously to the left front and downward until nearly horizontal, support the weight of the body by resting the left wrist ont he horse's neck just in front of the withers, the forearm against the horse's left shoulder, keeping the head close to the right

arm, the blade at the height of the eye and in the direction of the line of sight. In withdrawing the saber, rotate the arm and saber to the right until the finger nails are *down*.

Being at the *Guard:* 1. ***Left,*** 2. ***LUNGE.*** At the command ***Left,*** turn the head and eyes to the left, and carry the arm and saber in the same direction, with the saber and forearm in a straight line pointing to the left and horizontal,

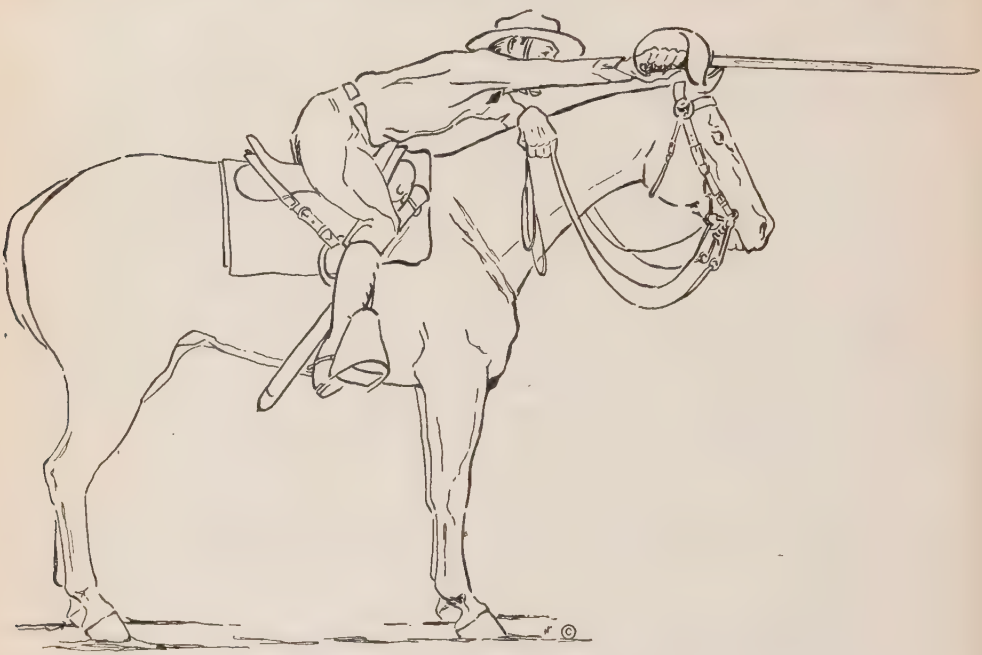


PLATE 6. 1. *Right front,* 2: *LUNGE.*

the back of the hand up, the edge of the blade to the front, the point at the height of an adversary's breast, and the hand about six inches in front of the left breast. At the command ***LUNGE,*** thrust the saber in the direction of the adversary's breast, rotate the arm to the left so that the edge of the blade is up, and at the same time turn the body to the left at the waist; then, without pause, bend the body vigorously at the waist as far as possible in the direction of the lunge. In withdrawing the saber, rotate the arm and saber to the right until the finger nails are *down*.

Being at the *Guard:* 1. ***Right,*** 2. ***LUNGE.*** At the command ***Right,*** carry the arm and saber to the right, the arm two-thirds extended, the saber and forearm in a straight line pointing to the right and nearly horizontal, the back of the hand up, the edge of the blade to the rear, the point at the height of an adversary's breast, the blade and the entire arm in the same vertical plane. At the command ***LUNGE,*** thrust the saber in the direction of the adversary's breast, rotating the arm so that the edge of the blade is up, bending the body vigorously at the waist as far as possible in the direction of the lunge.

Being at the Guard: 1. ***Right low,*** 2. ***LUNGE.*** At the command ***LUNGE,*** thrust the saber in the direction of the adversary's breast, rotating the arm so that the edge of the blade is up, the arm and blade extended in a straight line from the shoulder and forming an angle of about 45 degrees with the ground; then, without pause, bend the body at the waist vigorously forward and downward sufficiently to cause the saber to pierce the target. The weight of the body is supported by resting the left forearm well forward on the horse's neck. In

withdrawing the saber, rotate the arm and saber to the right until the finger nails are *up.*

Being at the Guard. 1. ***Left low,*** 2. ***LUNGE.*** At the command ***Left low,*** carry the arm and blade to the left front, and turn the head and eyes in the same direction. At the command ***Lunge,*** thrust the saber in the direction of the adversary's body, rotate the arm to the left so that the edge of the blade is up, and, at the same time, turn the body to the left at the waist so as to bring the shoulders, arm and blade in line, the arm and saber extended in a straight line and forming an angle of about 45 degrees with the ground; then, without pause, bend the body at the waist vigorously to the left front and downward sufficiently to cause the saber to pierce the target. The left wrist rests on the horse's neck

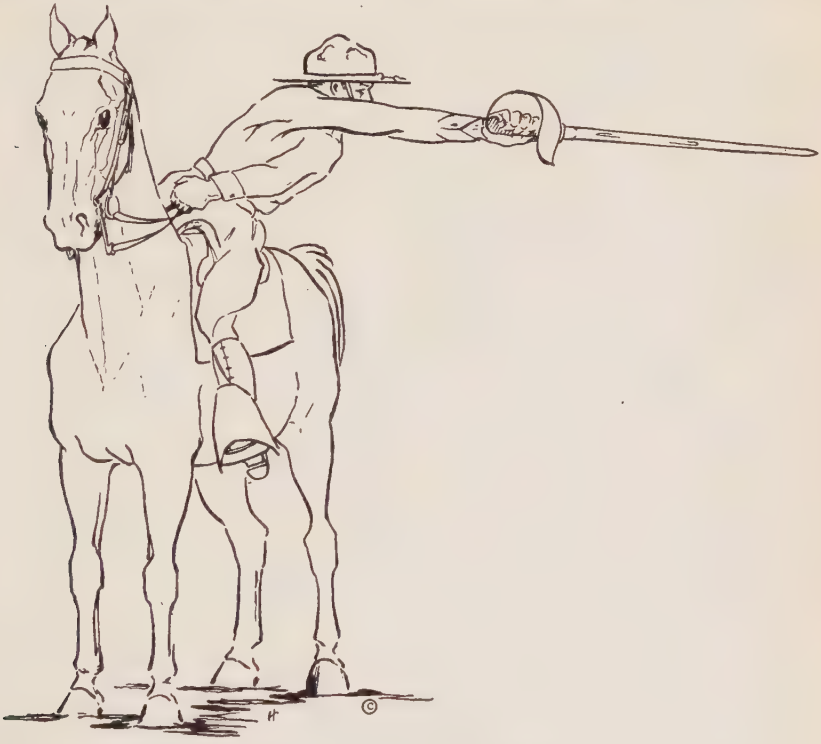


PLATE 7. 1. *Left,* 2. *LUNGE.*

just in front of the withers, with the forearm against the horse's left shoulder. In withdrawing the saber, rotate the arm and saber to the right until the finger nails are *down.*

To Execute Charge Saber. The position of ***Lunge to the Right front*** is also the position of ***Charge saber.*** The command is: 1. ***Charge,*** 2. ***SABER.*** At the command ***Saber,*** the position of ***Right front lunge*** is taken and held until changed by some appropriate command such as ***Guard;*** or 1. ***Carry,*** 2. ***SABER.*** In returning from ***Charge saber*** to ***Guard*** or any other position, the same rotation of the wrist is made as in returning from ***Right front lunge.***

Practice at the Gallop. As soon as the troopers are reasonably proficient in the execution of the saber exercises at the halt, the instructor should require them to execute the exercises with the horse in motion. For this purpose, he forms the squad in column of troopers, at six yards distance, at the walk. After some practice at the walk, the exercises should be practiced at th gallop. In executing the lunges with the horse in motion, full and accurate extensions toward an

imaginary adversary should be made without causing the horse to change gait or direction.

Dummies.

Dummies are divided into three classes: high, low, and prone. They may be constructed of ordinary gunny sacks tightly stuffed with straw. The high and low dummies should be placed on supports, such as boxes or posts, or they may be suspended from overhead ropes or cables; if suspended, a rope should be run from each dummy to a stake driven in the ground under it to keep it from swinging. The supports for the high dummies should be such as to raise the bottoms of the dummies 5 feet from the ground, and for the low dummies, such as to raise the bottoms of the dummies 3 feet and 4 inches from the ground.

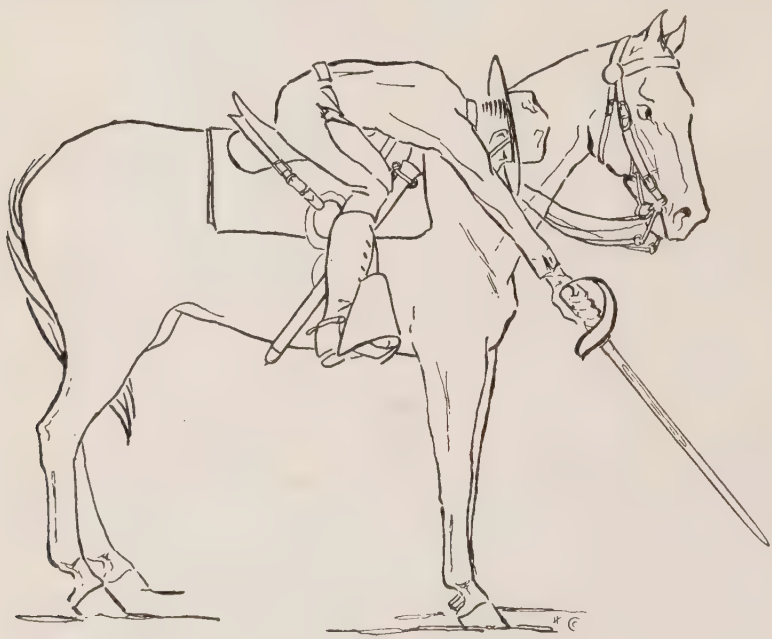


PLATE 8. *Right Low, 2. LUNGE.*

A satisfactory high dummy may be constructed as follows: The dummy itself is a cylinder of burlap or sacking 10 inches in diameter and 20 inches long. The upper end may be closed with a string or sewed. The lower end is tacked to the frustum of a right cone 10 inches in diameter at the upper base and 6 or 7 inches at the lower. The frustum is from 3 to 4 inches thick. The sack or cylinder of burlap is stuffed as tightly as possible with straw. A strip of leather nailed around the bottom of the sack where it joins the wooden base keeps the burlap from tearing out.

The wooden support is made as shown in the diagram. (Plate 9). For high dummies the support is 60 inches in height; for low dummies 40 inches. The basin at the top in which the dummy moves is made by cutting holes of suitable diameter in two or three 1-inch boards and nailing them together. The diameter of the basin should be 3 inches greater than that of the base of the dummy.

A bag of sand, bundle of scrap iron, or other weight, should be suspended from the base of the dummy and hung low inside the support. Thus, when the dummy is toppled over, it will immediately resume an upright position.

When the dummy is set up for use, iron pins with L-shaped heads should be driven into the ground with the projection over the frogs at the base to prevent the wooden suppport from being toppled over.

Lunges Against Dummies. As soon as the trooper has acquired a knowledge of the positions to be assumed in making the lunges, practice should be had against dummies.

Several dummies are placed in line with intervals of about ten yards, in any order desired.

The instructor causes the troopers, individually, to leave the track and pass in

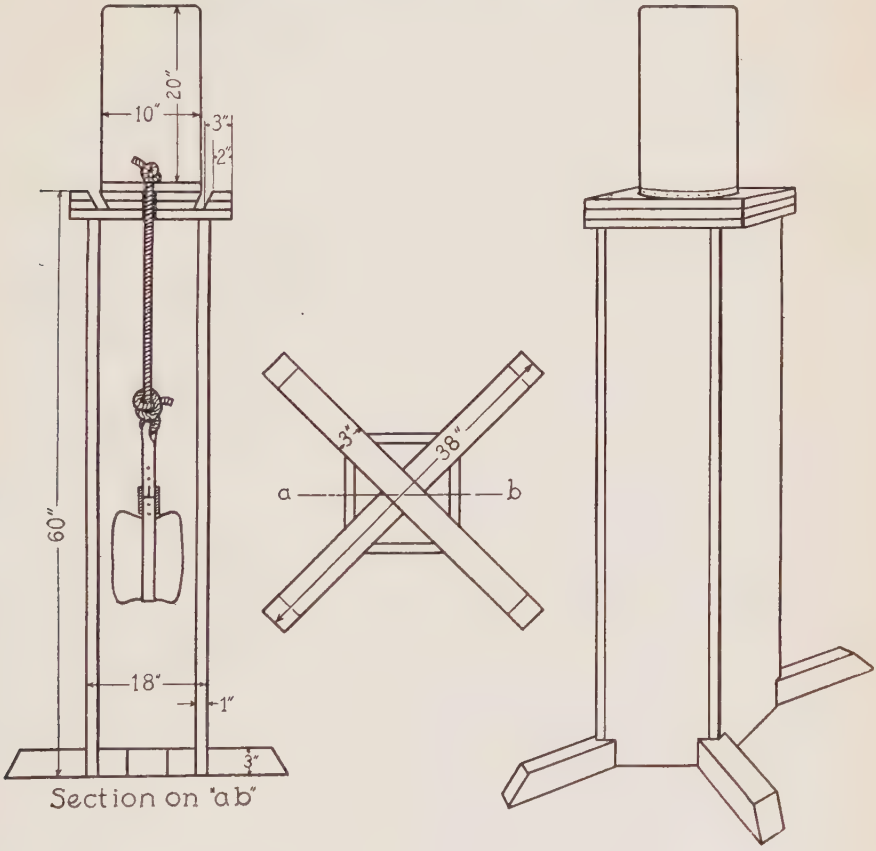


PLATE 9. Construction of High Dummy.

and out among the dummies at the walk, and, from the position of *Guard,* practice the lunges.

When the trooper is fairly proficient in the lunges at dummies at the walk, the same practice should be repeated at the gallop.

Great attention should be paid by the instructor to the spirit with which the lunges are made.

The Saber Charge. When the trooper has acquired confidence in the use of his saber, and is able to execute the lunges accurately at both the walk and the gallop, he should be taught the charge. For this instruction, a chute or run-way at least 60 yards long, one yard high, and 2 yards wide, with a dummy at the right side of its further end is constructed (in emergency, a satisfactory run-way may be improvised from blankets hung on ropes as illustrated in Plate 11). The trooper enters the chute at the gallop, and at once assumes the position of *Charge saber.* He retains this position until his blade has passed through the dummy. As he gains confidence, the rate of the gallop is increased to the limit.

The run-way ends at the first dummy, thereafter the trooper rides at the ***Guard,*** making his lunges at the right moment, from this position.

At first, the trooper attacks one dummy only; next, two in succession; then,

PLATE 10. Charge Saber at the Gallop, Lunge Against High Dummy.

three in succession; and so on. As the trooper progresses in proficiency, distances between dummies should be varied, and they should be so arranged that to attack them, the trooper will be required to make quick, sharp changes in direc-

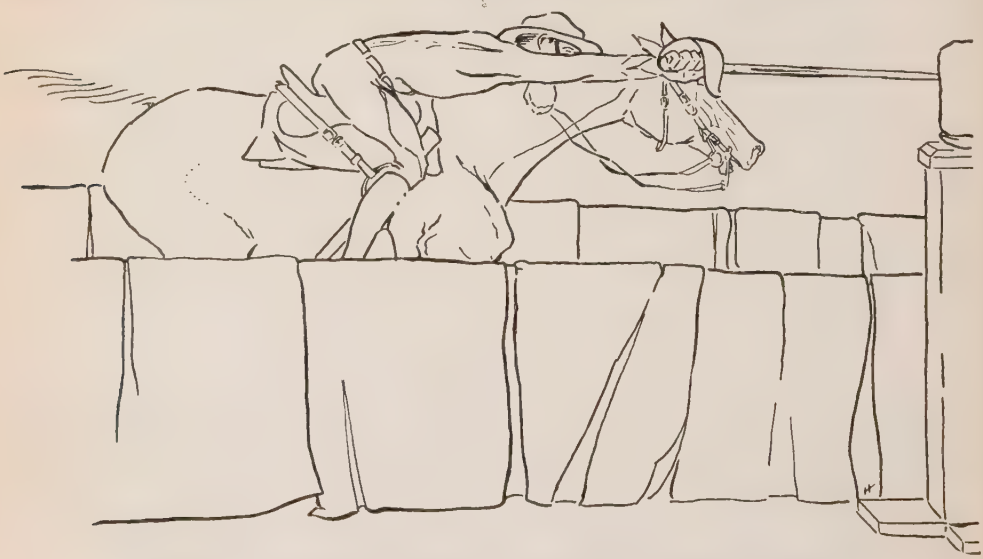


PLATE 11. Improvised Runway for Instruction in the Saber Charge.

tion. If the trooper is inaccurate, or if his horse becomes difficult to manage, he should be returned to practice of the lunges at the walk and gallop.

Collective Instruction with the Saber.

When the trooper has learned to ride his horse with confidence, is fairly proficient in the use of the aids, has a good seat and is able to execute the lunges accurately, the instructor conducts a few exercises in attacks by twos, fours, and eights, in ***Line.*** This instruction is for the purpose of giving the individual

trooper practice in acting in concert with others, thus preparing him to charge in *Line* with his squad, platoon and troop.

Collective Attacks. In a collective attack with the saber, as when a squad, platoon or troop charges in *Line,* the position of charge saber is assumed at the command: *CHARGE,* usually given at about 60 yards from the enemy and held until collision has been effected. Upon collision with the enemy, the attack in line may be followed by a melee; the action of each trooper thereafter is that of an individual, and his saber should be held and used accordingly.

The Qualification Course.

The object of the course is to provide a standard by which officers and men in the Cavalry may be uniformly judged as to their saber proficiency, mounted, and to furnish an opportunity for the individual to simulate the use of his saber in action following immediately after a similar action on the mounted pistol course where the pistol has been employed and emptied.

The course will be laid out as shown in Plate 12. A site for the course will be selected near the mounted pistol course in such a location that the start will be at least 100 yards from the finish of that course. The saber course does not necessarily have to be in prolongation of the mounted pistol course. It may be located in any direction desired, or, if the available ground is restricted, it may be located on the same ground as that selected for the mounted pistol course,

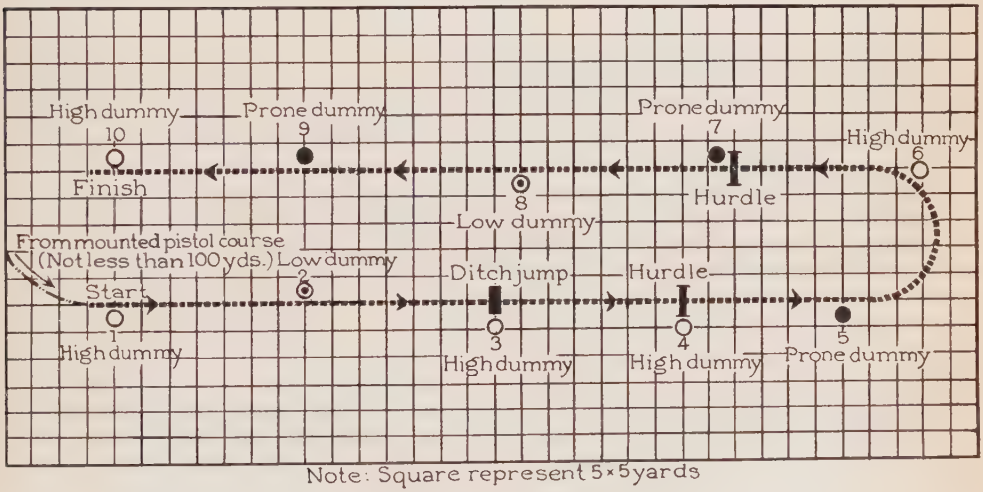


Plate 12. Qualification Course, Saber.

the two courses overlapping where necessary. In locating the saber course near the mounted pistol course due consideration will be given the safety of the personnel using either course.

The length of the course, from dummy No. 1 to dummy No. 10, is 319.27 yards. The curve at the end has a radius of 12½ yards. The dummies, 10 in number, are of three kinds—high, low, and prone. There are two hurdles and one ditch along the track, each of which is opposite or close to a dummy, as indicated in Plate 12. The hurdles are solid obstacles 2 feet high and 16 feet long, preferably log jumps. The ditch is 4 feet wide and 16 feet long.

Manner of Taking the Course. The record course consists of two runs, each of which is executed in continuation of a similar run for record on the individual pistol qualification course, mounted.

Each run will be taken as indicated in Plate 12 by the dotted line with arrow showing direction, the trooper proceeding at a gallop along a designated track

from the finish of the mounted pistol course to the start of the saber course, and continuing the gallop, passing over all obstacles encountered en route, until he has passed the finish (dummy No. 10) of the saber course. The gallop must be continuous, except during refusals or runouts. Nothing will be deducted from his score for a refusal provided the obstacle is eventually jumped; a delay only affects success in arriving at the end of the course within the time limit.

The first dummy (No. 1) is taken at charge saber; the second dummy (No. 2) is taken at left front lunge; all the others are attacked by lunging at the right moment, the trooper exercising care to choose that lunge which will be at the moment most effective.

Having passed a dummy, the trooper will not be allowed to return to attack it, except when a dummy at an obstacle is passed by reason of the horse running out.

Scoring. In order to secure uniformity in scoring, the post or regimental commander will detail such number of qualified officers as may be necessary to supervise the scoring in the saber qualification course.

Three points will be scored for piercing the dummy with the point of the saber.

Two points may be scored for vigor of the attack; that is, the spirit and fighting manner in which the lunges are made. If the vigor of the attack is excellent, two points will be scored; if it is very good, one and one-half points will be scored; if it is good, one point will be scored; and if it is fair, one-half point will be scored. Nothing will be scored for vigor of the attack if it is considered less than fair.

As a possible score at each dummy is 5 points and as there are 10 dummies and 2 runs, the possible score is 100.

Time Limit. The time limit for each run, measured from the instant the trooper lunges at or passes dummy No. 1 up to the instant he lunges at or passes dummy No. 10, is 45 seconds.

Penalties. Penalties will be exacted as follows:

For each second in excess of the prescribed time limit of 45 seconds, two points will be deducted from the score.

For each obstacle not jumped, five points will be deducted from the score.

For each instance during a run that the horse assumes a gait other than the gallop, one point will be deducted from the score. This penalty will not be construed as applicable in cases of run-outs, refusals, or where the horse in changing leads hits two or three beats of the trot.

Requirements for Qualification. Officers and enlisted men who are required or authorized to demonstrate proficiency in the use of the saber will be graded, according to proficiency, as *expert swordsmen, excellent swordsmen, swordsmen* or *unqualified.* The requirements for qualification are given in the following table:

Grade	Percentage
Expert swordsman	At least 90.
Swordsman	At least 75.
Excellent swordsman	At least 85.
Unqualified	Less than 75.

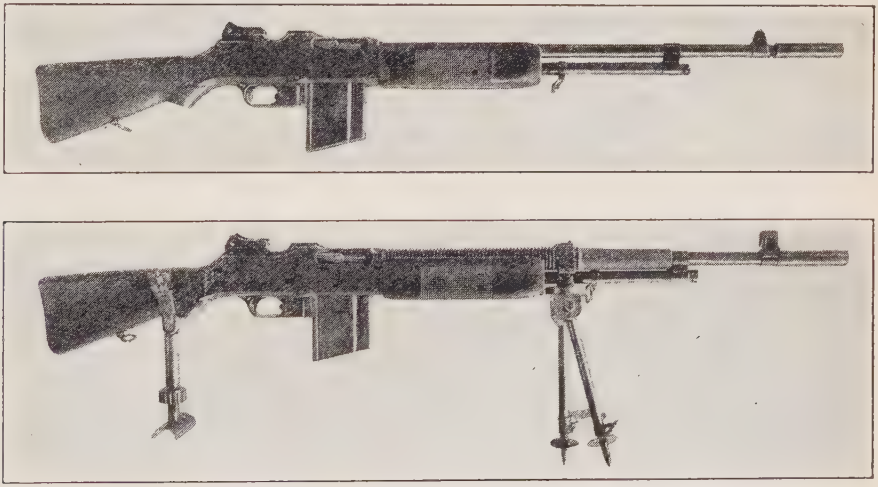
CHAPTER III.

THE BROWNING MACHINE RIFLE.[1] STRIPPING AND ASSEMBLING.

Mobility and Fire Power. The cavalry is the only arm which has thus far been equipped with the machine rifle. It is a highly mobile weapon of great fire power. Mounted, machine-rifle platoons have approximately the same mobility as cavalry rifle platoons. When the machine rifle is unpacked and carried by hand it is about as mobile as the service rifle, since, although more than double the weight of the rifle, it can be carried and operated by a single trooper. It has greater mobility than the machine gun in pack, being lighter in weight. For dismounted action requiring dismounted movement, this difference in weight is of greater consequence and constitutes a distinctive advantage of the machine rifle over the machine gun.

The machine rifle can maintain a high rate of automatic fire for a short time only. By firing a series of single aimed shots at the rate of 40 to 60 shorts per minute (semi-automatic fire) or a series of short bursts of 3 to 10 shots each (automatic fire), it is capable of a rate and volume of fire equal to that of from 4 to 6 service rifles. The machine rifle has its greatest effectiveness when used against the head of a column of troops or against the flank of troops in line. Fairly accurate fire is possible at ranges up to 1000 yards. Beyond 1000 yards, the fire is very inaccurate. Fire over the heads of friendly troops should never be attempted with the machine rifle.

Comparison With the Automatic Rifle. The machine rifle is similar to the automatic rifle in its principal functions and characteristics. The two weapons



Above, The Automatic Rifle. Below, The Machine Rifle.

Plate 13. The Automatic Rifle and the Machine Rifle.

are practically identical except that the machine rifle has a bipod mount, a stock rest, a slightly different rear sight, a heavier barrel, and a series of cooling fins

[1]NOTE: The War Department has authorized the substitution of the Browning Cavalry Light Machine Gun for the machine rifle in machine rifle platoons of the Regular Army. This weapon is similar in nearly every respect to the heavy Browning machine gun in the machine-gun troop, the principal difference being the elimination of the water jacket. The light machine gun is air cooled. The adoption of this weapon materially increases the fire power of the rifle troop. The tactical use of the light machine gun will be the same as the machine rifle. National Guard organizations will receive these weapons as soon as funds are available. It is expected that cavalry organizations of the regular army will be equipped with the light machine gun in the near future.

in order to give a larger radiating surface (see Plate 13). Since cavalry R.O.T.C. units are as yet equipped with automatic rifles, in lieu of machine rifle, a part of the instruction which follow is devoted to the automatic rifle.

Organization of Cavalry Machine-Rifle Units. The cavalry machine-rifle platoon consists of a small platoon headquarters and two or more machine-rifle squads. War strength tables of organization provide four squads. The platoon headquarters consists of one officer, the platoon leader, and three enlisted assistants, the platoon sergeant and two messengers.

The machine-rifle squad normally consists of a corporal, the squad leader, and six troopers. Each squad consists of two machine-rifle crews, with the pack animals necessary for the transport of the machine rifles and their ammunition. The squad leader is also the gunner of gun crew No. 1, and a selected private is gunner of crew No. 2. In addition to its gunner, each crew has an ammunition carrier (who is also trained as an air scout), one horseholder, and one pack horse carrying the machine rifle and ammunition. The remaining trooper in the squad is a horseholder for the entire squad. One additional pack horse is provided for the use of the squad.

Machine-Rifle Training.

Individual machine-rifle training falls into two main divisions. One is **marksmanship training,** during which the student learns to make hits. The other is **mechanical training,** which teaches what he must know and be able to do to insure the continued successful mechanical operation of the weapon, on the range and during combat. Both are essential. Marksmanship without mechanics is of little value. The fire powder of a machine rifle in the hands of an expert shot who cannot remedy minor stoppages may be lost, probably for the remainder of a fight, when such a stoppage occurs, while another man, properly trained, can have the weapon in action again, usually in a few seconds. The efficient machine-rifleman is one who has had thorough training both in marksmanship and the mechanics of the gun. Mechanical training is given first, and must precede any range practice.

General Data.

Name. Automatic[1] rifle, Browning, Model of 1918.

Type. A gas-operated, air-cooled, magazine-fed, shoulder weapon.

Weight. Gun complete, with sling but without magazine, 15 pounds, 8 ounces.

Magazines. Capacity, 20 rounds; weight empty, 7 ounces; weight loaded, 1 pound, 7 ounces.

Length. Over all, 47 inches; barrel, 24 inches; gas port from muzzle, 6 inches.

Sights. Graduated in hundred of yards, from 200 to 1600; no wind gauge.

Recoil Spring. Length, 15 inches; pressure when compressed, 19 pounds.

Caliber. 0.30 inch. (This is "caliber .30," the same as the Springfield rifle, and the same ammunition is used.)

Chamber Pressure. 47,000 to 50,000 pounds per square inch.

Muzzle Velocity. About 2680 feet per second.

Habitual Type of Fire. Semi-automatic or self-loading. (In semi-automatic fire the trigger is pulled for each shot.)

Cyclic Rate. Rate of uninterrupted automatic fire, 600 shots per minute.

Most Effective Rate of Fire. 40 to 60 shots per minute, semi-automatic.

The rifle is operated by the power furnished by expanding powder gases following ignition of the cartridge. These powder gases expand through a port in the barrel and act upon the head of a piston, driving it to the rear. During rearward movement the processes of unlocking, extraction, ejection, and compression of the recoil spring are effected. During the forward movement, feeding, locking, and igniting the cartridge are accomplished.

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[1]NOTE. As has been mentioned earlier, ROTC units are not equipped with the machine rifle; instruction in *mechanical training* is therefore given in its mechanical counterpart, the automatic rifle

There is no special cooling system, the barrel being exposed to the air, and the hand of the firer protected on the under side of the barrel by a large wooden forearm.

The rifle can be fired effectively from any of the positions prescribed for the service rifle. However, on account of its weight, the best position is prone with a rest.

Names of Exterior Parts. Certain parts of the rifle, externally visible, are

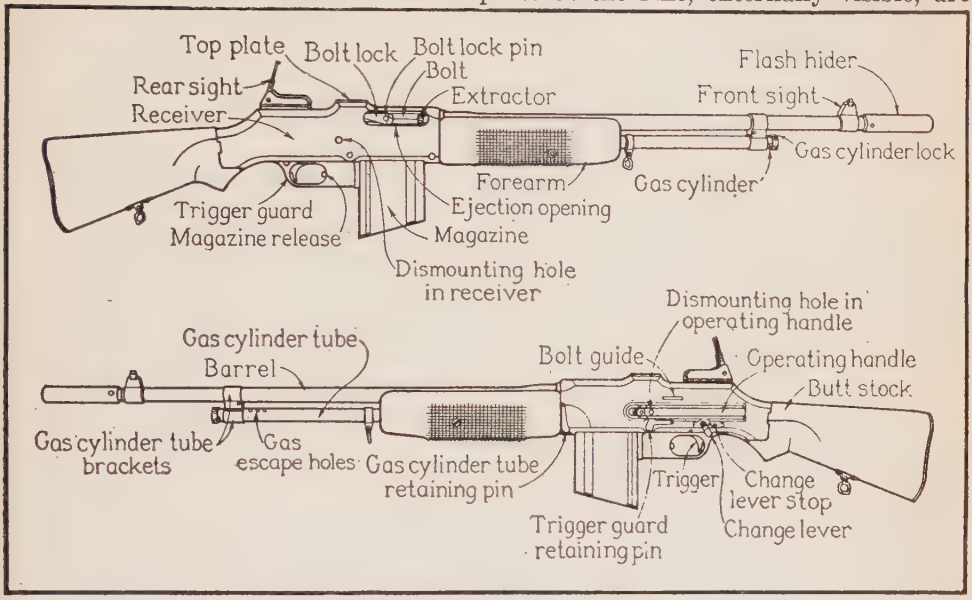


PLATE 14. Browning Automatic Rifle, Model 1918.

indicated and named in Plate 14. The automatic rifleman must be able readily to name and point out any of these parts.

STRIPPING AND ASSEMBLING.

Regulations. The following regulations must be observed in stripping and assembling the automatic rifle:

Force should not be used in stripping and assembling.

The piece should not be stripped or assembled against time.

The trigger mechanism should not be stripped and assembled blindfolded.

The rifle is so constructed that it can be taken apart and re-assembled without the use of force. Most of the parts are designed to prevent wrong assembling. When difficulty arises in stripping and assembling, it is due to error on the part of the operator. The use of force will result only in damage to the rifle.

The practice of stripping and assembling against time serves no useful purpose and results in burring and damaging parts. As men become more familiar with the rifle skill is gradually developed and lost motion eliminated. In stripping, the men are taught to lay the parts out in the proper sequence for assembling, and should so thoroughly learn the mechanism of the rifle that taking it apart and putting it together are done without conscious effort.

The purpose of stripping and assembling blindfolded is to train men to be able to do these operations at night. As the trigger mechanism is not a part of field stripping, it will rarely be stripped at night, even in action. Breakages in the trigger mechanism are rare.

Sequence of Field Stripping.

1. Cock the piece.
2. Gas cylinder tube retaining pin.

3. Gas cylinder tube and forearm.
4. Let the mechanism forward easily.
5. Trigger guard retaining pin.
6. Trigger guard.
7. Recoil spring guide and recoil spring.
8. Push hammer pin through dismounting hole in the side of the receiver and part way out.
9. Operating handle.
10. Remove hammer pin completely.
11. Hammer.
12. Slide.
13. Push out bolt guide and remove bolt, bolt lock, and link.
14. Firing pin.
15. Link pin and link.
16. Extractor.
17. Extractor spring.

Detailed Explanation of Field Stripping. (Plates 15, 16, and 17.) Remove the magazine by pressing the magazine release.

Lay the rifle on the table, barrel down and muzzle to the left.

Cock the piece by pulling the operating handle to the rear. This must be done in order that the gas cylinder tube may clear the gas piston and the gas cylinder tube bracket.

Insert the point of a bullet in the indentation near the end of the gas cylinder tube retaining pin handle, swing the handle backward and upward through an angle of 180°, and then withdraw it and pin from the rifle.

Remove the gas cylinder tube and forearm by sliding them off toward the muzzle, being careful not to damage any of the parts by rough or careless handling.

Place the middle and index fingers of the left hand astride the piston, pull the trigger with the thumb of the right hand and let the mechanism move gently forward, resisting the pressure of the recoil spring with the fingers astride the piston. The natural tendency on the part of the beginner is to snap the piece or remove the trigger guard before easing the mechanism forward. This will result in damage to the rifle and should be avoided.

Insert the point of a bullet in the indentation in the handle of the trigger guard retaining pin, turn it upward through an angle of 90°, and remove it to the right. Lift the trigger guard from its slot in the bottom of the receiver.

Place the tip of the index finger on the checkered head of the recoil spring guide, press forward and turn it in either direction until it is disengaged from the retaining shoulders in the forward end of the receiver, and remove the recoil spring and recoil spring guide to the rear.

Insert the point of a bullet in the dismounting hole in the operating handle. Push gently back on the operating handle with the forefinger of the right hand, at the same time exerting pressure to the left with the point of the bullet, so that when the hammer pin and the dismounting hole in the receiver coincide, the end of the hammer pin will be forced through the dismounting hole. Now remove the operating handle to the rear, and the hammer pin to the left.

Move the slide to its rearmost position. Hook the index finger of the left hand under the front end of the hammer and lift it out of the receiver.

Swing the link back until it lies flat and draw the slide to the front out of the receiver. In removing the slide care should be taken to avoid striking the end of the piston against the gas cylinder tube bracket. The link must be perfectly flat or the slide will not clear.

Grasp the link with the thumb and finger of the right hand and lift the bolt lock out of engagement with its seat in the top of the receiver, sliding it to the rear as far as it will go. Still holding the link, press outward on the bolt guide with the end of the left thumb (or the point of a bullet) and lift the bolt from

the receiver. An undercut notch in the receiver is provided in some rifles which will permit the rim of a cartridge being inserted under the bolt guide. The latter may thus be pried out and the bolt removed.

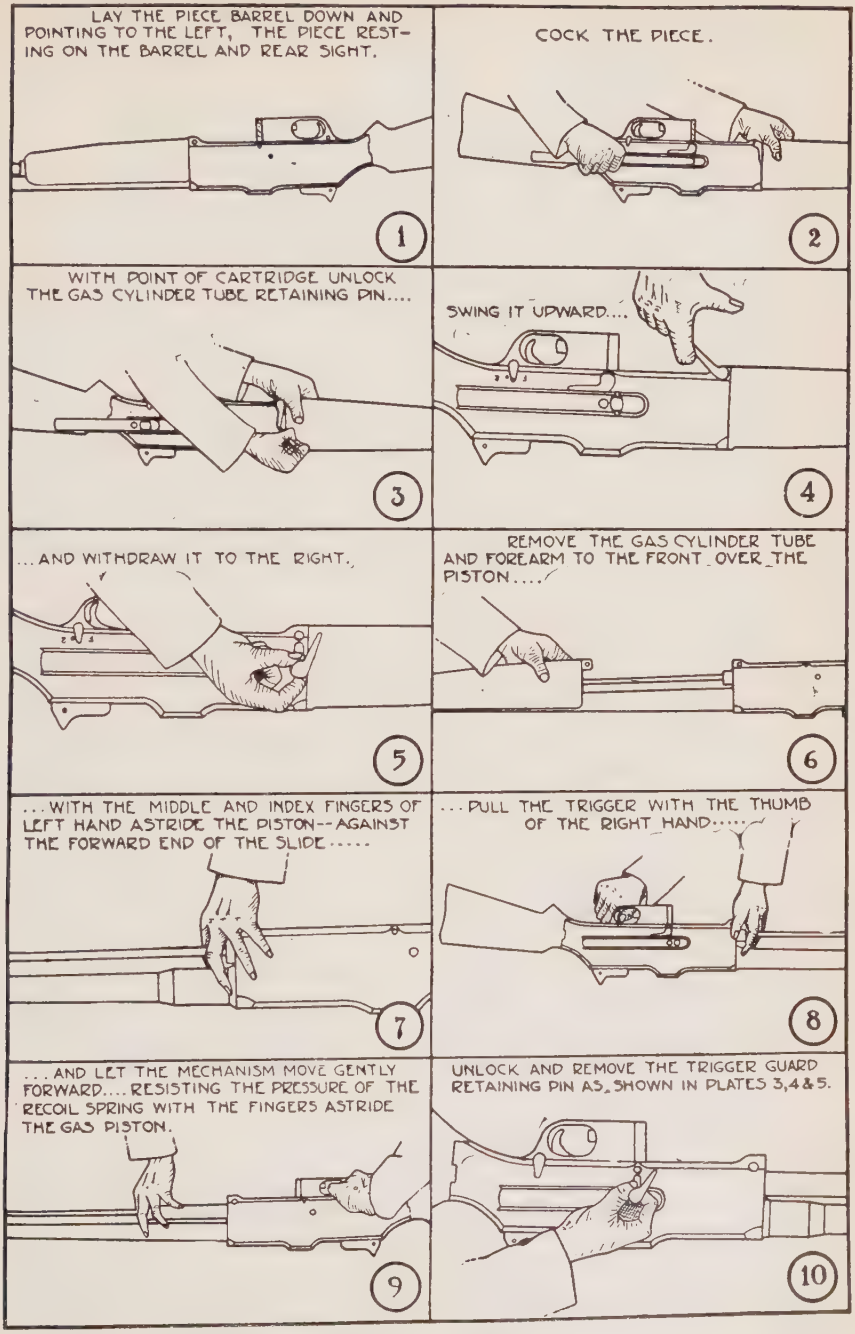

LAY THE PIECE BARREL DOWN AND POINTING TO THE LEFT, THE PIECE RESTING ON THE BARREL AND REAR SIGHT.
1
COCK THE PIECE.
2
WITH POINT OF CARTRIDGE UNLOCK THE GAS CYLINDER TUBE RETAINING PIN....
3
SWING IT UPWARD....
4
...AND WITHDRAW IT TO THE RIGHT.
5
REMOVE THE GAS CYLINDER TUBE AND FOREARM TO THE FRONT OVER THE PISTON....
6
...WITH THE MIDDLE AND INDEX FINGERS OF LEFT HAND ASTRIDE THE PISTON--AGAINST THE FORWARD END OF THE SLIDE.....
7
...PULL THE TRIGGER WITH THE THUMB OF THE RIGHT HAND.....
8
...AND LET THE MECHANISM MOVE GENTLY FORWARD....RESISTING THE PRESSURE OF THE RECOIL SPRING WITH THE FINGERS ASTRIDE THE GAS PISTON.
9
UNLOCK AND REMOVE THE TRIGGER GUARD RETAINING PIN AS SHOWN IN PLATES 3,4&5.
10

PLATE 15. **Field Stripping, the Automatic Rifle or the Machine Rifle (1).**

Take the bolt in the left hand, lift the bolt lock and remove the firing pin. Then using the firing pin as a drift, push out the link pin.

Reverse the position of the bolt in the left hand. Place the point of a bullet under the claw of the extractor, push out until the extractor shoulder is clear,

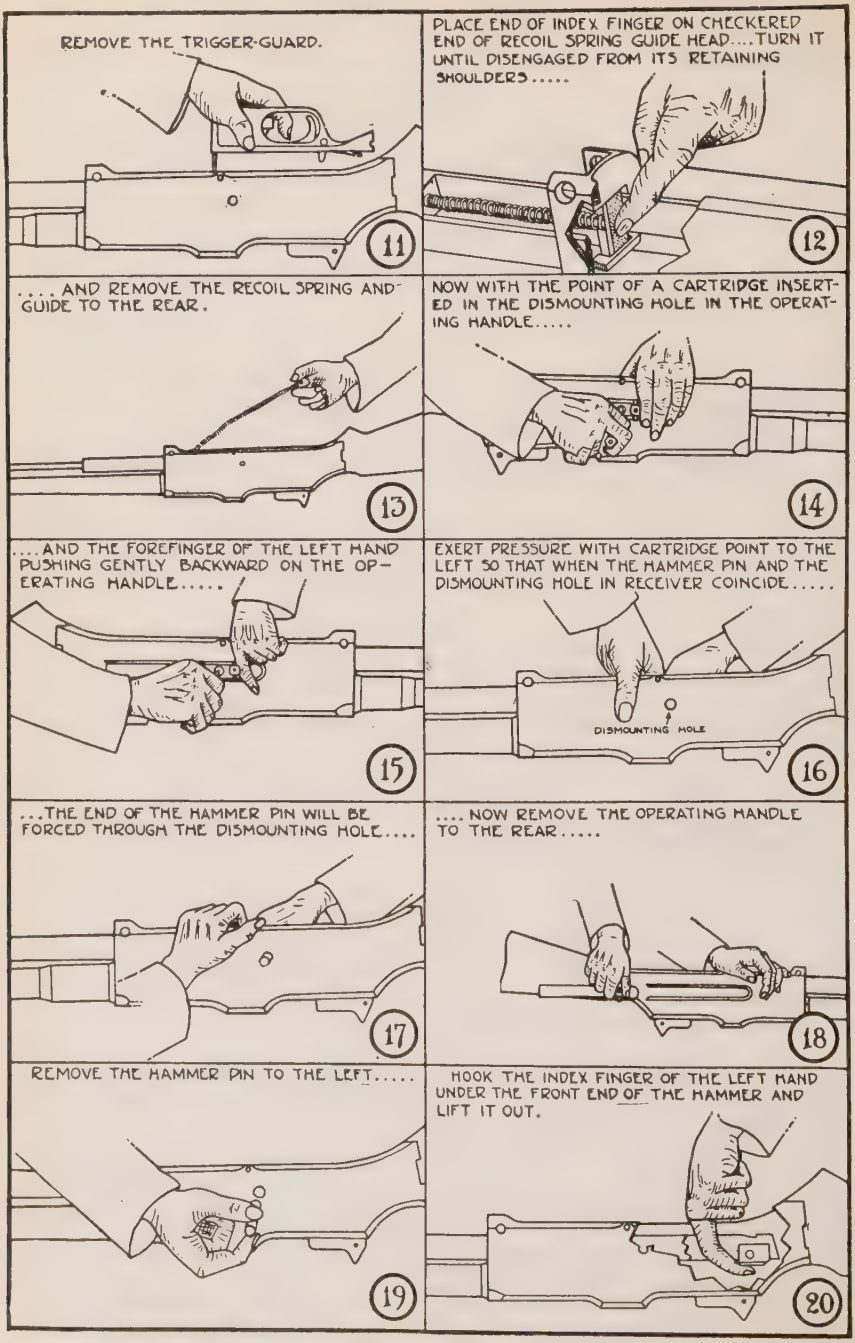

REMOVE THE TRIGGER-GUARD.
11
PLACE END OF INDEX FINGER ON CHECKERED END OF RECOIL SPRING GUIDE HEAD....TURN IT UNTIL DISENGAGED FROM ITS RETAINING SHOULDERS.....
12
....AND REMOVE THE RECOIL SPRING AND GUIDE TO THE REAR.
13
NOW WITH THE POINT OF A CARTRIDGE INSERTED IN THE DISMOUNTING HOLE IN THE OPERATING HANDLE.....
14
....AND THE FOREFINGER OF THE LEFT HAND PUSHING GENTLY BACKWARD ON THE OPERATING HANDLE.....
15
EXERT PRESSURE WITH CARTRIDGE POINT TO THE LEFT SO THAT WHEN THE HAMMER PIN AND THE DISMOUNTING HOLE IN RECEIVER COINCIDE.....
DISMOUNTING HOLE
16
...THE END OF THE HAMMER PIN WILL BE FORCED THROUGH THE DISMOUNTING HOLE....
17
.... NOW REMOVE THE OPERATING HANDLE TO THE REAR.....
18
REMOVE THE HAMMER PIN TO THE LEFT.....
19
HOOK THE INDEX FINGER OF THE LEFT HAND UNDER THE FRONT END OF THE HAMMER AND LIFT IT OUT.
20

PLATE 16. Field Stripping, the Automatic Rifle or the Machine Rifle (2).

then pry the extractor forward and remove it from the bolt. Pull out the extractor spring.

The rifle is now dismounted or stripped as far as is necessary in field stripping.

Sequence of Field Assembling.

1. Extractor spring.
2. Extractor.

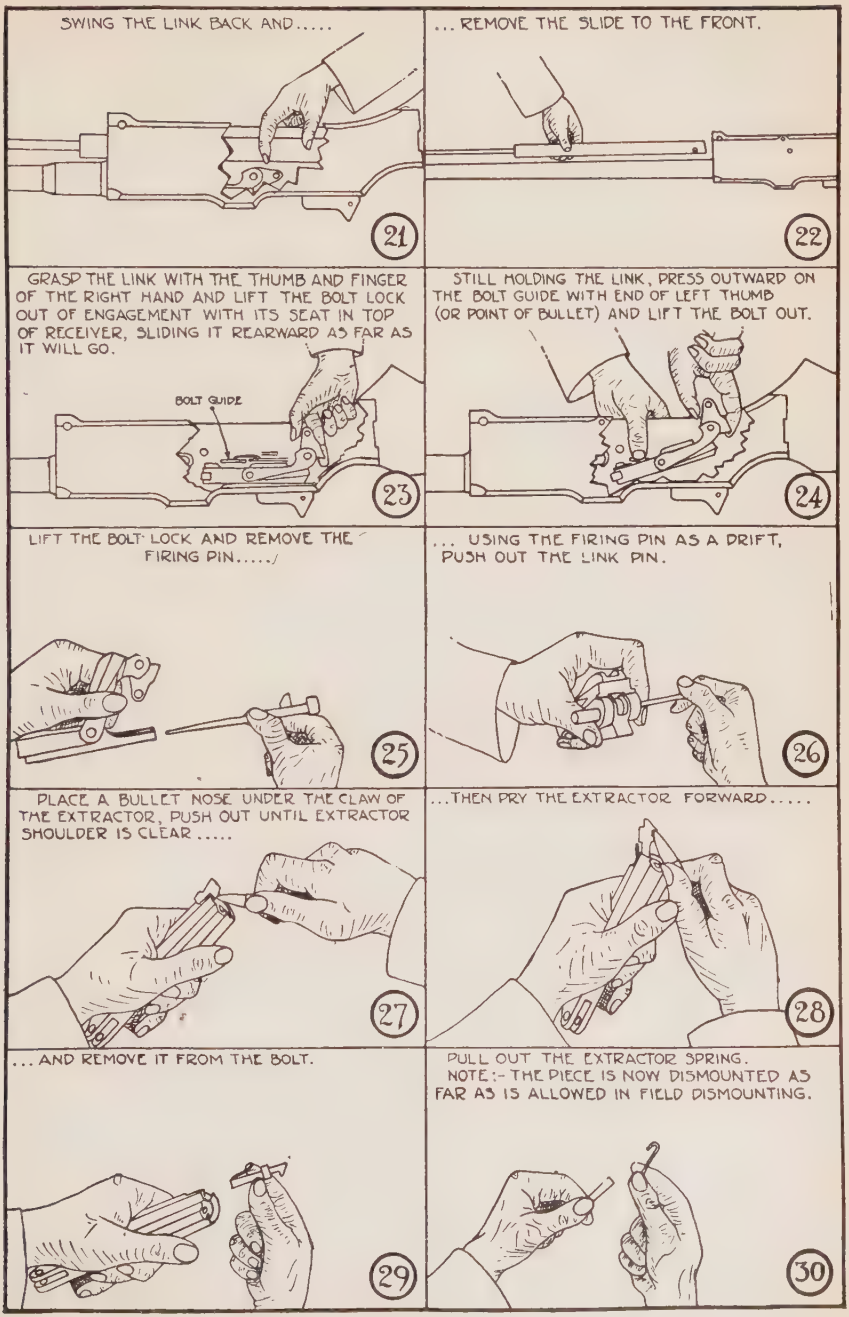

SWING THE LINK BACK AND.....
21
... REMOVE THE SLIDE TO THE FRONT.
22
GRASP THE LINK WITH THE THUMB AND FINGER OF THE RIGHT HAND AND LIFT THE BOLT LOCK OUT OF ENGAGEMENT WITH ITS SEAT IN TOP OF RECEIVER, SLIDING IT REARWARD AS FAR AS IT WILL GO.
BOLT GUIDE
23
STILL HOLDING THE LINK, PRESS OUTWARD ON THE BOLT GUIDE WITH END OF LEFT THUMB (OR POINT OF BULLET) AND LIFT THE BOLT OUT.
24
LIFT THE BOLT LOCK AND REMOVE THE FIRING PIN...../
25
... USING THE FIRING PIN AS A DRIFT, PUSH OUT THE LINK PIN.
26
PLACE A BULLET NOSE UNDER THE CLAW OF THE EXTRACTOR, PUSH OUT UNTIL EXTRACTOR SHOULDER IS CLEAR .....
27
...THEN PRY THE EXTRACTOR FORWARD.....
28
... AND REMOVE IT FROM THE BOLT.
29
PULL OUT THE EXTRACTOR SPRING.
NOTE:- THE PIECE IS NOW DISMOUNTED AS FAR AS IS ALLOWED IN FIELD DISMOUNTING.
30

PLATE 17. Field Stripping, the Automatic Rifle or the Machine Rifle (3).

3. Link and link pin.
4. Firing pin.
5. Bolt, bolt lock and link returned to the receiver.

6. Slide.
7. Hammer.
8. Hammer pin far enough to register all holes.
9. Operating handle.
10. Hammer pin fully seated.
11. Recoil spring and recoil spring guide.
12. Trigger guard.
13. Trigger guard retaining pin.
14. Cock the piece.
15. Gas cylinder tube and forearm.
16. Gas cylinder tube retaining pin.
17. Let the mechanism forward easily.
18. Test the piece.

Detailed Explanation of Field Assembling. (Plates 18, 19, and 20). First replace the extractor spring in its seat in the extractor. The short section of this spring goes in the hole in the end of the extractor and the long section rests in the slot in its side.

Replace the extractor in its seat in the bolt. In doing this the extractor is pushed into its seat until the shoulder comes in contact with the face of the bolt. Now place the thumb of the right hand on the claw of the extractor and force it out until its shoulder disengages with the face of the bolt, then exert a pressure to the rear. The extractor will now slide easily into its seat.

Take the bolt in the left hand, bolt lock up. Replace the link and link pin. In doing this be sure that the flat surface on the link rests against the corresponding flat surface on the bolt lock. Lift the bolt lock and replace the firing pin.

Lay the piece barrel down and pointing to the left as in stripping. Now with the bolt mechanism held in a perpendicular position over the receiver, insert it in the receiver, forcing the end of the bolt under the ends of the bolt supports. Then press the mechanism down so as to lie flat in its place. Now push the bolt mechanism forward until it rests against the front end of the receiver, and swing the link back so that it rests in a horizontal position.

Replace the slide, sear notch side up (visible) and hammer seat side down (invisible), by inserting it in the forward end of the receiver, and push it all the way back.

Now with the hammer resting on the end of the index finger, lower and seat it properly in the slide. In inserting the hammer in the slide, the rounded end must be toward the rear and the shoulders up.

Now push the slide forward, and, using the thumb and forefinger of the right hand, align the hammer pin holes of the link, hammer and slide with the dismounting hole in the side of the receiver. Insert the hammer pin to the right and press it in until only one-fourth of an inch of the pin protrudes from the receiver.

Replace the operating handle. In doing this be sure to have the operating handle plunger to the front. If the operating handle is assembled with the plunger to the rear and the hammer pin pressed into its position, the services of an expert mechanic will be required before the piece can again be operated or stripped. Now tap the protruding end of the hammer pin with sufficient force to drive it home.

Move the slide forward as far as it will go and replace the recoil spring and recoil spring guide in the piston. Push the head of the guide forward, compressing the spring. Then with the end of the index finger on the checked head of the recoil spring guide, turn it until it is properly seated.

Replace the trigger guard. In assembling the trigger guard see that no pins are projecting from its sides. Seat the undercut tongue on the rear of the trigger guard under the lip on the rear of the receiver and press back and down, hinging it into place.

Line up the trigger guard retaining pin holes in the receiver and trigger guard. Replace the trigger guard retaining pin, and turn it down until it snaps into its locked position.

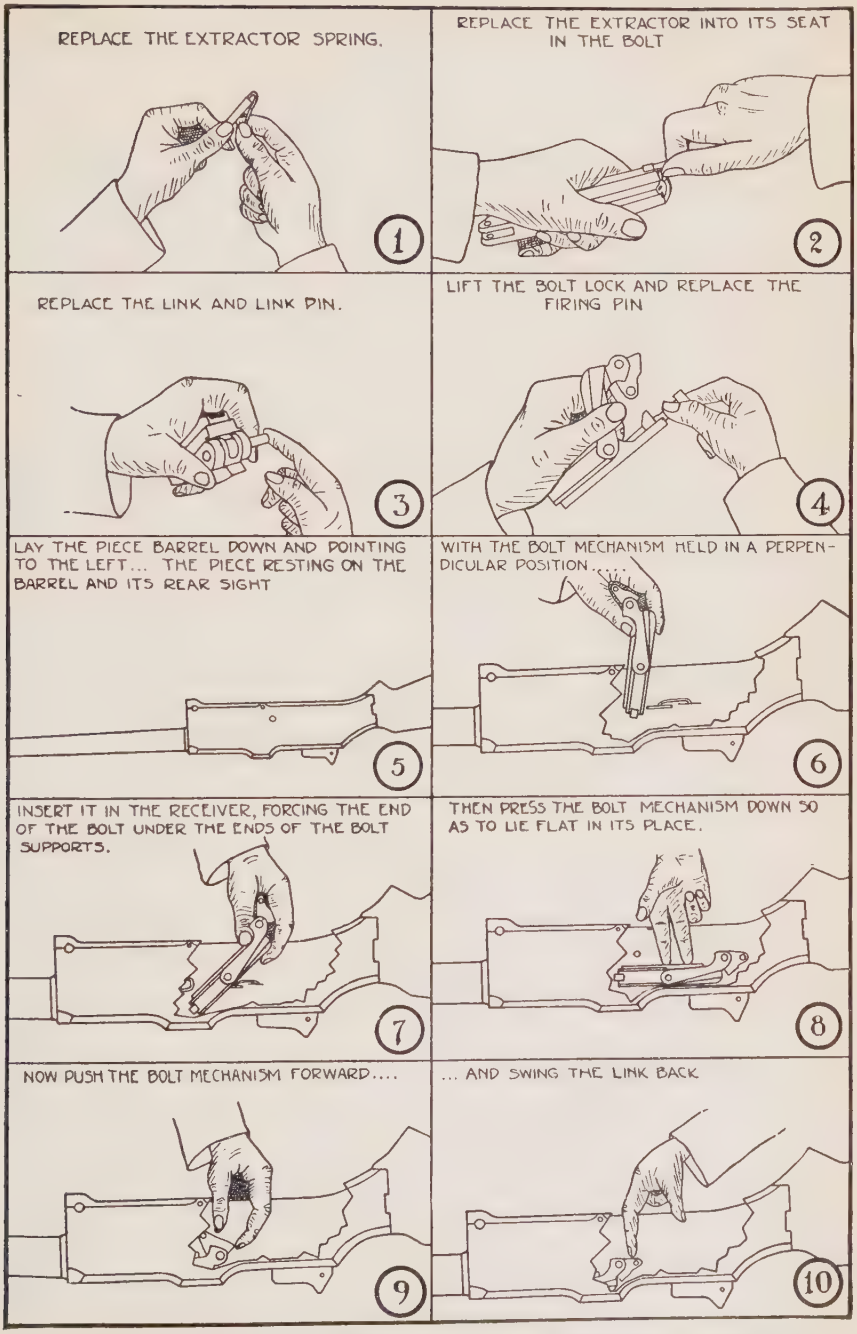

REPLACE THE EXTRACTOR SPRING.
1
REPLACE THE EXTRACTOR INTO ITS SEAT IN THE BOLT
2
REPLACE THE LINK AND LINK PIN.
3
LIFT THE BOLT LOCK AND REPLACE THE FIRING PIN
4
LAY THE PIECE BARREL DOWN AND POINTING TO THE LEFT... THE PIECE RESTING ON THE BARREL AND ITS REAR SIGHT
5
WITH THE BOLT MECHANISM HELD IN A PERPENDICULAR POSITION...
6
INSERT IT IN THE RECEIVER, FORCING THE END OF THE BOLT UNDER THE ENDS OF THE BOLT SUPPORTS.
7
THEN PRESS THE BOLT MECHANISM DOWN SO AS TO LIE FLAT IN ITS PLACE.
8
NOW PUSH THE BOLT MECHANISM FORWARD....
9
... AND SWING THE LINK BACK
10

Plate 18. Assembling the Automatic Rifle or the Machine Rifle (1).

Cock the piece by pulling the operating handle to the rear with the right thumb. Slide the gas cylinder tube and forearm to the rear over the position

In doing this be careful to see that the gas cylinder tube brackets are registered.

Replace the gas cylinder tube retaining pin, and turn it down until it snaps into its locked position.

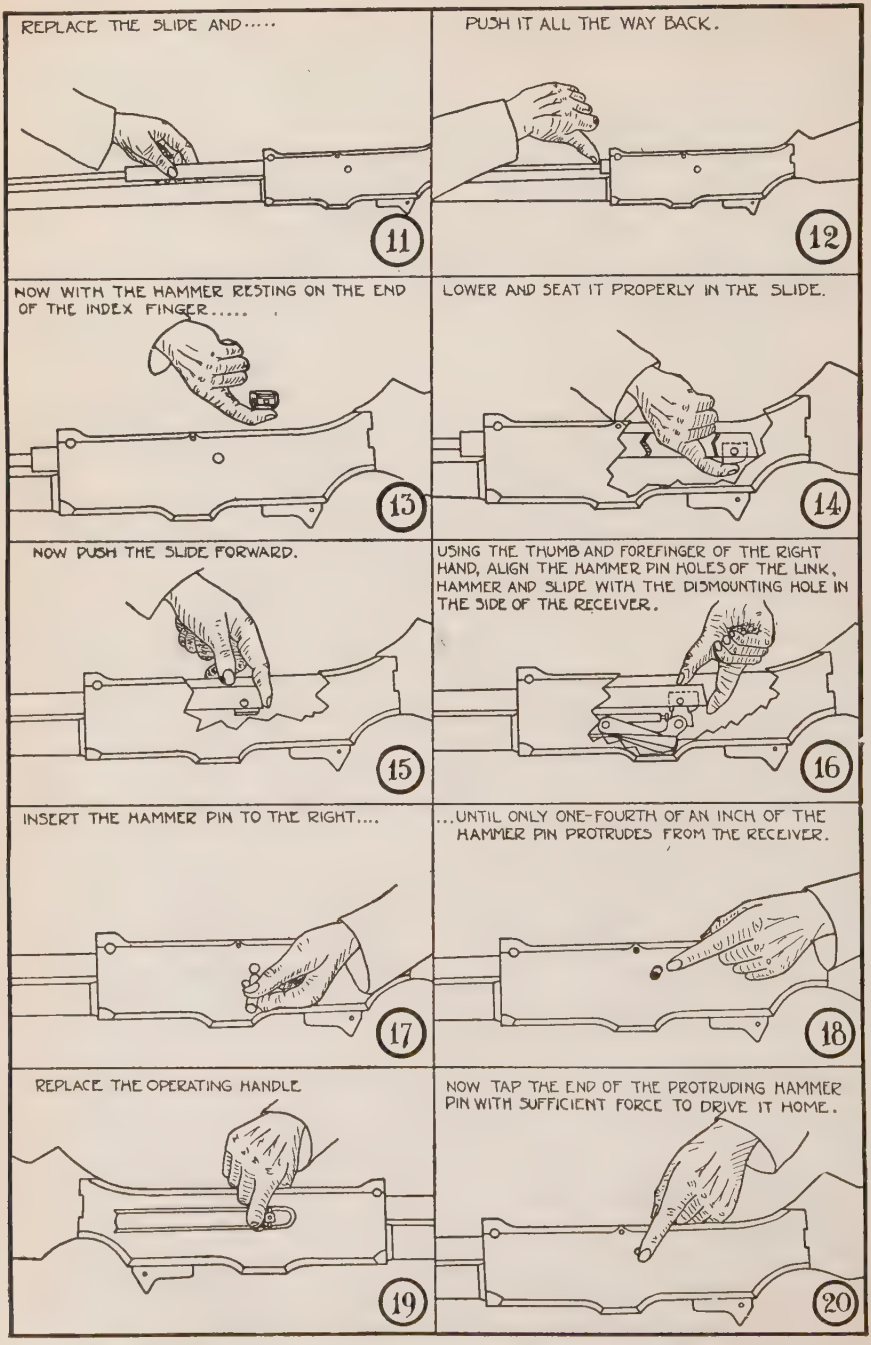

REPLACE THE SLIDE AND.....
11
PUSH IT ALL THE WAY BACK.
12
NOW WITH THE HAMMER RESTING ON THE END OF THE INDEX FINGER.....
13
LOWER AND SEAT IT PROPERLY IN THE SLIDE.
14
NOW PUSH THE SLIDE FORWARD.
15
USING THE THUMB AND FOREFINGER OF THE RIGHT HAND, ALIGN THE HAMMER PIN HOLES OF THE LINK, HAMMER AND SLIDE WITH THE DISMOUNTING HOLE IN THE SIDE OF THE RECEIVER.
16
INSERT THE HAMMER PIN TO THE RIGHT....
17
...UNTIL ONLY ONE-FOURTH OF AN INCH OF THE HAMMER PIN PROTRUDES FROM THE RECEIVER.
18
REPLACE THE OPERATING HANDLE
19
NOW TAP THE END OF THE PROTRUDING HAMMER PIN WITH SUFFICIENT FORCE TO DRIVE IT HOME.
20

Plate 19. Assembling the Automatic Rifle or the Machine Rifle (2).

Hold the operating handle with the forefinger of the right hand and pull the trigger, allowing the mechanism to move forward slowly under the action of the

recoil spring. Repeat this several times to make sure that the mechanism works smoothly.

The piece is now completely assembled and ready for operation.

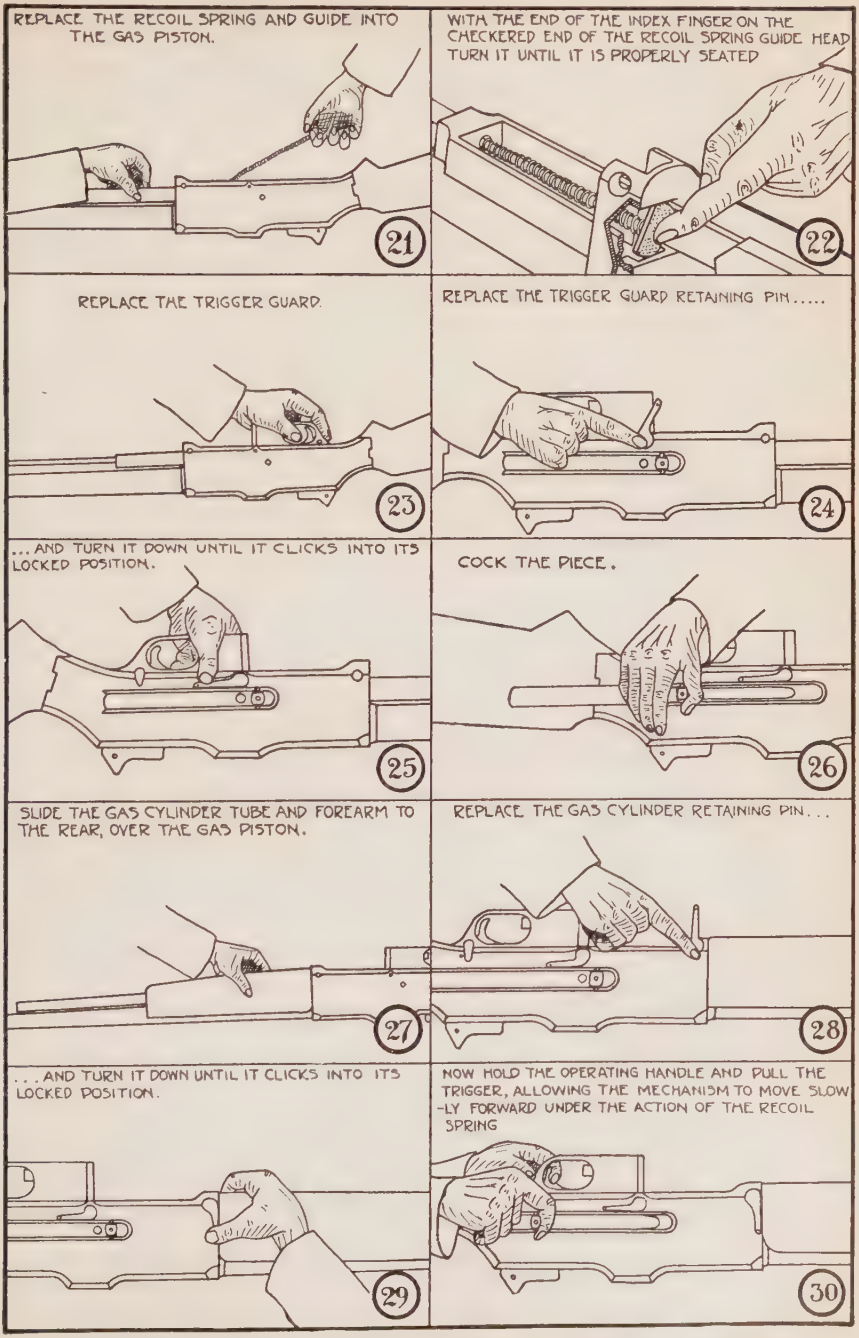

REPLACE THE RECOIL SPRING AND GUIDE INTO THE GAS PISTON.
21
WITH THE END OF THE INDEX FINGER ON THE CHECKERED END OF THE RECOIL SPRING GUIDE HEAD TURN IT UNTIL IT IS PROPERLY SEATED
22
REPLACE THE TRIGGER GUARD.
23
REPLACE THE TRIGGER GUARD RETAINING PIN.....
24
...AND TURN IT DOWN UNTIL IT CLICKS INTO ITS LOCKED POSITION.
25
COCK THE PIECE.
26
SLIDE THE GAS CYLINDER TUBE AND FOREARM TO THE REAR, OVER THE GAS PISTON.
27
REPLACE THE GAS CYLINDER RETAINING PIN...
28
...AND TURN IT DOWN UNTIL IT CLICKS INTO ITS LOCKED POSITION.
29
NOW HOLD THE OPERATING HANDLE AND PULL THE TRIGGER, ALLOWING THE MECHANISM TO MOVE SLOW-LY FORWARD UNDER THE ACTION OF THE RECOIL SPRING
30

PLATE 20. Assembling the Automatic Rifle or the Machine Rifle (3).

Remarks on Field Stripping and Assembling. During the work in stripping and assembling, concentrate on stripping and assembling. Do not let questions

about the operation of the rifle, or the reasons for designing it as it is designed, enter into this instruction. All such points are properly a part of later instruction.

Nomenclature is not taken up as a special study. Students are expected to become familiar with the names of parts through using these names as the work proceeds.

When time and facilities permit, field stripping and assembling blindfolded may be practiced. Such practice facilitates work on the gun in the dark, should that ever be necessary.

Stripping and Assembling the Trigger Guard.

The larger end of the trigger guard, the one to which the ejector is assembled, is its front end. The other, smaller end, is the rear end of the trigger guard.

Sequence of Stripping and Assembling.

Stripping.	Assembling.
1. Ejector.	1. Change lever.
2. Magazine catch spring.	2. Change lever spring.
3. Magazine catch pin.	3. Sear carrier and counter recoil spring.
4. Magazine catch and magazine release.	4. Sear pin (part way).
5. Sear spring.	5. Sear.
6. Trigger pin.	6. Sear pin (pushed entirely home).
7. Trigger and connector.	7. Trigger and trigger pin.
8. Sear pin.	8. Connector.
9. Sear.	9. Sear spring.
10. Sear carrier and counter recoil spring.	10. Magazine release.
11. Change lever spring.	11. Magazine catch.
12. Change lever.	12. Magazine catch pin.
	13. Ejector (part way).
	14. Magazine catch spring.
	15. Ejector (fully seated).

Details of Stripping the Trigger Guard. With the left hand, hold the trigger guard in a vertical position, rear end down, front end up, bottom toward the operator, thumb of left hand against the lower edge of the ejector. With the point of a dummy cartridge depress the ejector lock and let the left thumb push the ejector part way off, enough so it will keep the ejector lock depressed. Then let the left thumb cover the lower end of the ejector to keep the magazine catch spring from flying out when the ejector is removed, and, using the right hand, put off the ejector.

Drop out the magazine catch spring.

Push out the magazine catch pin.

Reverse the trigger guard and let the magazine catch and magazine release drop out.

Place the trigger guard on the table, top up, and front end toward the operator. With the right hand, slide the handle of the trigger guard, retaining pin under the three leaves of the sear spring. Then rotate the trigger guard retaining pin forward. The handle will raise the middle leaf of the sear spring high enough so that it will not catch in the sear when the spring is pushed off. Use the left thumb to push off the sear spring, exerting pressure at the bent over end of the spring. This operation may be difficult at first, but is readily and easily performed after a little practice.

Push out the trigger pin. This pin is interchangeable with the magazine catch pin. Be careful to take out the trigger pin and not the sear pin.

Turn the trigger guard upside down and shake out the trigger and connector. The connector is the small boot-shaped piece of metal.

Push out the sear pin, using the recoil spring guide as a drift.

Lift out the sear.

Pry the rear end of the sear carrier up and out of its seat, using the recoil spring guide as a lever, and remove the sear carrier and counter recoil spring.

Lift the hooked end of the change lever spring out of its slot by prying up with the bent over end of the sear spring, and then push off the change lever spring by pressing with the thumb against the sear stop (the little knob on the change lever spring).

Remove the change lever.

Everything has now been stripped from the trigger guard except the ejector lock, which must not be taken out of its seat because it cannot be properly replaced outside of a suitably equipped shop.

Details of Assembling the Trigger Guard. Replace the change lever. Be sure it is fully seated.

Replace the change lever spring. To assemble this spring, first insert its ears in their slots in the trigger guard and push the spring forward a short distance. Then insert the rounded end of the sear spring between the change lever spring and the rear end of the trigger guard. Place the trigger guard on the table with the rear end toward the operator. Press forward against the sear stop with the right thumb, and push the change lever spring forward. When its front end touches the change lever, rotate the change lever with the left thumb slowly from rear to front, at the same time continuing to push against the sear stop with the right thumb. The spring will slide easily into place.

Replace the sear carrier and counter recoil spring. The counter recoil spring is placed on its guide on the forward end of the sear carrier. Note the hole for this guide in the forward part of the trigger guard. Take care in assembling to get the guide properly centered in this hole. Put the sear carrier, flat side down, into place between the walls of the trigger guard, seating its rear end in front of the ears of the change lever spring by pressing forward against the rear end with both thumbs. (If the thumbs are not strong enough, insert the recoil spring guide through the top of the sear carrier just in rear of the connector stop, and using the recoil spring guide as a lever, pry the sear carrier forward into its seat.)

Force the recoil spring guide into the sear pin holes until its point is about midway between the walls of the sear carrier, then use it as a lever to push the carrier forward sufficiently to insert the sear pin into the holes on the side opposite the recoil spring guide. Push the sear pin through only one side of the trigger guard and sear carrier, because the sear is yet to be replaced.

Remove the recoil spring guide. Place the sear in position between the walls of the sear carrier, sear nose to the rear, and end with ears to the front. Move the sear until the sear pin holes are lined up, then drive the sear pin home by hammering it on wood, as the edge of a table.

Next assemble the trigger and trigger pin. To do this, hold the end of the trigger that has the hole for the trigger pin between the thumb and forefinger, and lower its other end between the walls of the sear carrier and into position. Line up the trigger pin holes and insert the trigger pin.

(Note. The trigger pin must not be inserted until after the sear pin is properly assembled. This is not a uncommon mistake resulting from failure to follow the proper sequence in assembling.)

Drop the connector, toe down and to the rear, into place between the front end of the sear and the connector stop. Notice that the connector is not assembled until after the trigger pin has been inserted.

Replace the sear spring by inserting its ears in their slots in the trigger guard and pushing it into position with the thumbs. Be especially careful that the outside prongs of the sear spring rest on their seats on the sear, and that the middle prong rides freely in the slot between the walls of the sear carrier. (If

the middle prong of the sear rests on one of the walls of the sear carrier instead of being between them, it cannot perform its function of pressing the connector down and back under the sear after each shot.)

Hold the trigger guard in a vertical position with front end up, and drop the magazine release, knobbed end down, into its seat. If the knobbed end of the magazine release does not seat itself in its hole, shake the trigger guard a little until it does.

Replace the magazine catch, being sure that the hole in its lower end fits over the spindle of the magazine release, and that it is right side up, that is, with the countersunk seat for the magazine catch spring visible.

Insert the magazine catch pin.

Slide on the ejector about two-thirds of the way.

Put the magazine catch spring in its seat on the magazine catch, compress it, and slide the ejector over it.

Depress the ejector lock and slide the ejector over it.

Test the assembly by working the magazine release and change lever, and by pulling the trigger with the change lever set in each of its three positions.

Miscellaneous Mechanical Instruction.

The following mechanical operations are taken up in this chapter:

Stripping and assembling the magazine.
Method of operating the magazine.
Setting the change lever.
Cocking the automatic rifle.
Adjustment of the gas.
The spare parts kit.
The ruptured cartridge extractor.
The combination tool.
The gas cylinder cleaning tool.
To change the firing pin without stripping the piece.
To change the extractor without stripping the piece.

Stripping and Assembling the Magazine. The magazine consists of four parts: The magazine tube, magazine base, magazine spring, and magazine follower.

To strip, first remove the magazine base by raising its rear end until the two indentations are clear, then slide it off to the rear. The magazine spring and follower will then fall out.

It is assembled in reverse order. Note that the bent end of the follower and the eye of the spring work against the inside of the rear (notched) end of the magazine.

The magazine requires the same care as the rifle. It should not be allowed to become dirty. Dented magazines will not work. The greatest possible care should be taken to prevent any damage to the lips of the magazine, or to the notch for the magazine catch.

Method of Operating the Magazine. To fill the magazine, place the wide end of the magazine filler over the top of the magazine so that the groove in the magazine filler fits over the catch rib of the magazine. Hold the magazine in the same relative position that it occupies in the rifle; that is, with the catch rib toward the operator. Then insert a clip of cartridges in the guides provided in the filler, and with the right thumb near the base, strip the cartridges into the magazine. Each magazine will hold four clips.

To insert the magazine in the rifle withdraw the empty magazine after pressing the magazine release. Hold the loaded magazine with the base in the palm of the right hand, cartridges pointing to the front. Insert it between the sides of the receiver in front of the trigger guard, and push it home with the right hand. The magazine can be inserted with the mechanism in either the cocked or forward position. It is, however, ordinarily inserted after the rifle has been cocked.

Setting the Change Lever. The change lever controls the type of fire. For semi-automatic fire (one shot each time the trigger is pulled), push the change lever to the forward position, marked "*F.*" For full automatic fire (continuous fire as long as the trigger is kept pressed and the magazine contains ammunition), set the change lever in the vertical position marked "*A.*"

To set the rifle at safe, depress the change lever stop (the little knob projecting out of the side of the receiver just under the letter "*S*"), and turn the change lever rearward until it covers the change lever stop. This is the position marked "*S.*" It will be noticed that the change lever stop prevents accidental setting of the change lever at safe during the excitement of battle, and at the same time allows a quick change from safe to either the automatic or semi-automatic setting.

Cocking the Automatic Rifle. When a shot is fired, the rifle automatically cocks itself ready for the next shot. However, for the first shot, it must be cocked by hand. This is done by pulling the operating handle all the way to the rear. Then immediately return the operating handle to its forward position. The operating handle remains in this forward position while the gun is firing. It does not work back and forth with the breech mechanism.

Adjustment of the Gas. (Plate 23). The rifle should normally be operated on the smallest gas port, and this setting will never be varied unless the rifle shows signs of insufficient gas. To align the smallest port, screw the gas cylinder into the forward end of the gas cylinder tube until it is about one turn from being all the way home and the smallest circle on the cylinder head is next to the barrel. Lock the cylinder in this position. If, upon firing, the rifle shows signs of insufficient gas, try setting the cylinder one complete turn on each side of the original setting. As soon as the proper setting has been obtained the automatic rifleman should carefully note the position so that he can quickly assemble the cylinder to the proper point without trial.

The larger ports are provided for use in case of emergency, when the action of the rifle has been made sluggish through the collection of dirt and grit, or the lack of oil, and conditions render it impossible for the rifleman to correct these troubles at the moment. For this reason the threads should be kept clean and oiled and the cylinder free to turn if necessary. Under adverse conditions, and when signs of insufficient gas become apparent, the cylinder should be unscrewed one-third of a turn, thus registering the medium circle and aligning the medium port with the gas orifice. To connect the largest port, with the gas orifice, repeat this operation.

The gas cylinder is unlocked by pushing on one side of the split pin that passes through the gas cylinder head, until the pin is moved about one-quarter of an inch. This unseats the rectangular bar on the other side of the cylinder head from the locking recess in the forward end of the gas cylinder tube, and frees the gas cylinder so that it may be unscrewed. The cylinder is locked by pushing the bar back into the locking recess.

The Spare Parts Kit. In the spare parts kit are remedies for all temporary stoppages. Without it the gun is liable to be out of action indefinitely; with it the gun can be back in action in a few seconds. The importance of knowing what is, and what is not, carried as a spare part should be impressed to all automatic riflemen. Spare parts must be kept lightly oiled. When spare parts are used for repair of the rifle, the kit must be replenished at the first opportunity. Worn and defective parts should not be kept in it. The kit consists of 1 spare parts case, leather, containing:

2 fabric containers.
1 oil can (filled).
1 combination tool.
1 recoil spring.
2 firing pins.
1 sear spring.
1 connector.
1 magazine catch spring.

1 thong cleaner.
1 gas cylinder cleaning tool.
1 ruptured cartridge extractor.
1 extractor.
1 extractor spring.
1 magazine catch pin.
1 change lever stop.
1 gas cylinder tube retaining pin.
1 trigger guard retaining pin.

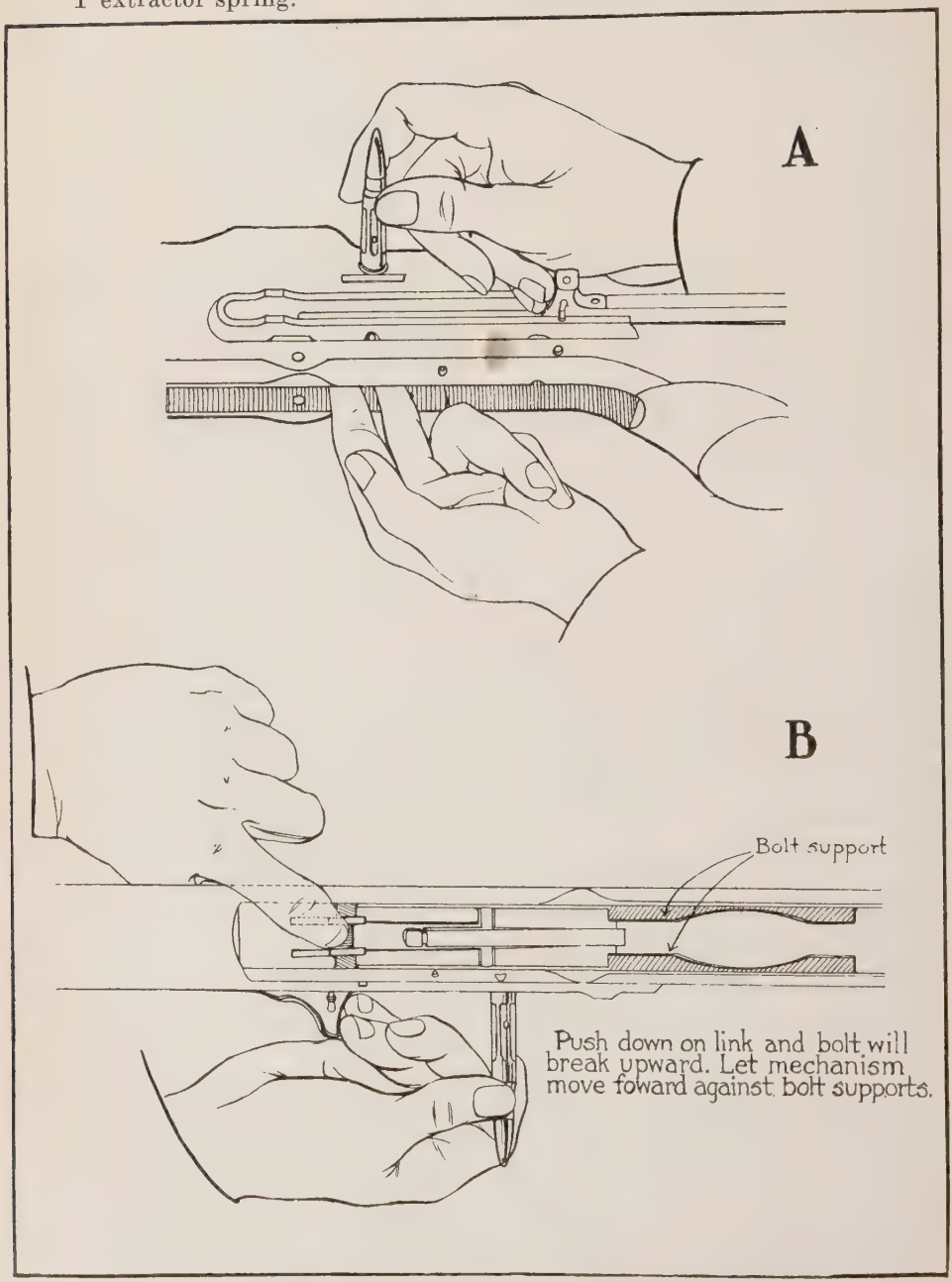


Plate 21. Changing the Firing Pin without Stripping the Piece.

The small fabric container is for the recoil spring. The large fabric container holds the items listed above from the thong cleaner to the trigger guard retaining pin inclusive. In packing the leather case, the combination tool is

first laid flat on the bottom of the case. On the combination tool, on edge, are placed the oil can, the large fabric container, and last, the small fabric container.

The Ruptured Cartridge Extractor. When a cartridge case ruptures, it tears apart about one-half inch from the base. The base is extracted, leaving the front end of the case in the chamber, which telescopes over the bullet end of the next cartridge. Sometimes the ruptured fragments will stick to the cartridge and come out with it when it is extracted, and in this case the use of the ruptured cartridge extractor is unnecessary. If the ruptured end is not extracted by the following cartridge; cock the rifle, remove the magazine, insert the ruptured cartridge extractor through the ejection opening, and push it forward into the chamber. Let the bolt forward without excessive shock so that the extractor engages the rim of the ruptured cartridge extractor, and then draw the operating handle back, extracting and ejecting the ruptured cartridge extractor, which will bring the ruptured fragment with it. This fragment is removed from the ruptured cartridge extractor by unscrewing the extractor. Two, and sometimes more, ruptures can be extracted before it is necessary to remove the fragments from the extractor. Every precaution should be taken to avoid the loss of this very important tool.

The Combination Tool. This tool is a combination screw-driver and spanner (wrench). The small spanner may be used to turn the gas cylinder and the flash hider. Barrels that are not excessively tight in the receiver can be removed and replaced by the use of the larger spanner, although shop facilities are necessary for the proper accomplishment of this work and it should never be attempted by line troops.

The Gas Cylinder Cleaning Tool. This tool is provided for use in cleaning the gas operating mechanism. The drift points are used to clean the gas ports. The body of the tool is used as a hand reamer to remove carbon from the interior of the gas cylinder. Carbon may be scraped from the front end of the piston with the cutting edge of the tool. Care must be exercised to avoid scoring or damaging the gas cylinder walls and the piston head.

To Change the Firing Pin Without Stripping the Piece. (Plate 21). Lay the rifle on the table, barrel down, muzzle to the front. Remove the trigger mechanism. Place the rim of a cartridge under the bolt guide. Pull the operating handle to the rear and hold the mechanism back. Steady the cartridge with the thumb and forefinger of the right hand. It may be necessary to exert a slight downward pressure on the nose of the cartridge in order to pull the bolt guide out far enough to free the bolt. Push down on the link, causing the bolt to break at the bolt lock pin. Allow the mechanism to go forward until it stops. Change the firing pin, then pull the operating handle to the rear again and push the bolt back into position.

To Change the Extractor Without Stripping the Piece. Draw back the bolt mechanism. Place an empty cartridge case in the receiver between the bolt and the rear end of the barrel. Let the bolt forward against the cartridge case. The bolt is stopped by the cartridge case in such a position that the extractor may be reached through the ejection opening. With the forefinger lift up the claw of the extractor, then place the point of a cartridge behind the extractor shoulder and pry the extractor forward out of its seat in the bolt. To replace, insert the extractor and extractor spring in the end of the bolt and push into position.

CHAPTER IV.

MACHINE RIFLE. FUNCTIONING.

First Phase.

Mechanical Functions of the Automatic Rifle. All automatic weapons must have mechanical means for performing the following functions: Extraction, ejection, feeding, locking the breech while there is a high pressure in the bore, and igniting the cartridge.

Operations such as extraction and ejection are performed by various cams, lugs, and springs, and the energy necessary to perform this work and to overcome friction in the rifle is derived from the explosion of the powder in the chamber.

A lug is a projection against which another part or surface operates or bears. The lug on the firing pin is an example. (Plate 28.)

A cam (or beveled) surface is one at any angle, except a right angle, with some normal surface.

To cam, is to change the direction of motion of a part by means of sliding contact between two surfaces.

The various operations performed by the mechanism have a certain sequence. Some of them are concurrent. The automatic rifleman must learn and under--stand these operations and the sequence in which they occur.

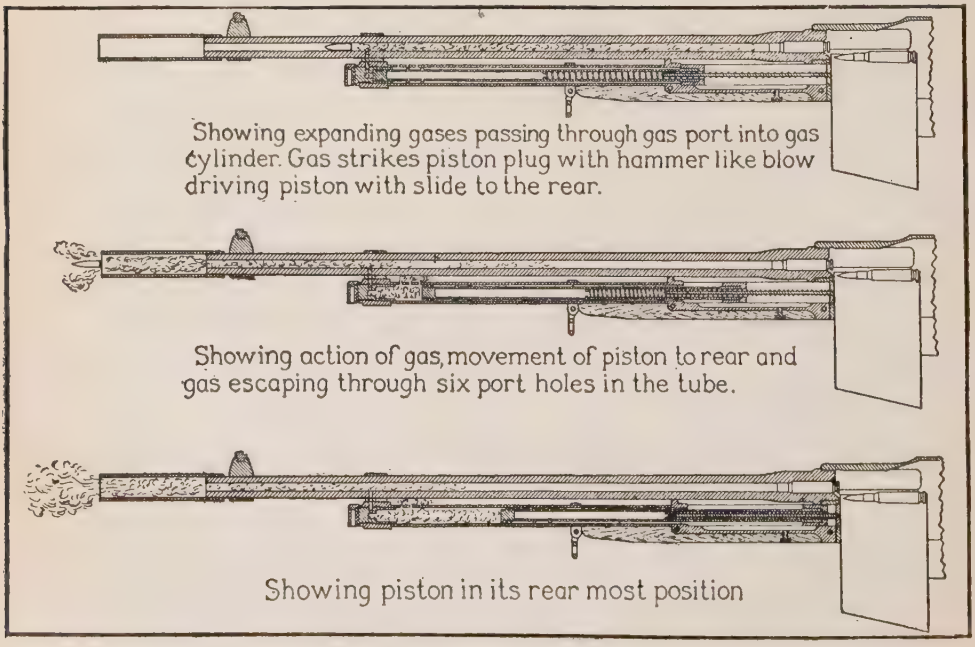

Showing expanding gases passing through gas port into gas cylinder. Gas strikes piston plug with hammer like blow driving piston with slide to the rear.
Showing action of gas, movement of piston to rear and gas escaping through six port holes in the tube.
Showing piston in its rear most position

PLATE 22. Action of the Gas.

For convenience the functioning of the Browning automatic rifle is divided into two phases, based on the operation of the mechanism when a shot is fired. These two phases are the backward action (first phase) and the forward action (second phase). In making this division, the ignition of the cartridge in the chamber is assumed as a starting or reference point.

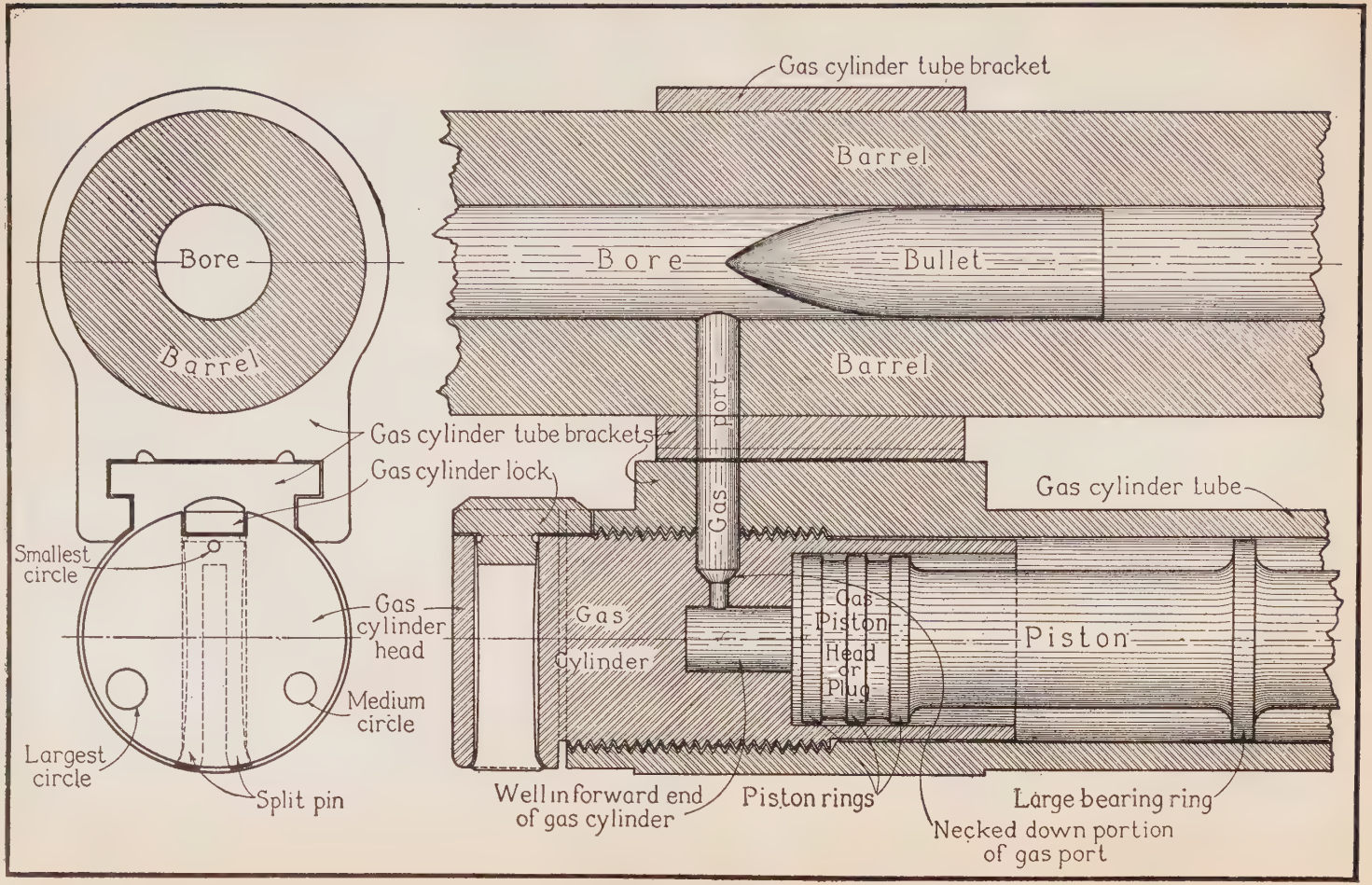


PLATE 23. Gas System.

Operations in the First Phase. The operations occurring in the first phase are:

Action of the gas.
Movement of the slide.
Unlocking.
Withdrawal of the firing pin.
Extraction.
Ejection.
Termination of the first phase.

Action of the Gas. (Plates 22 and 23). *Points to observe:*

The gas port in the bottom of the barrel six inches from the muzzle.

The gas ports in the gas cylinder tube brackets, gas cylinder tube, and gas cylinder, that provides a continuous passage for the gas from the barrel to the inside of the gas cylinder.

The port in the gas cylinder constricted or necked down so that the passage is smaller. It is in the relative size of this throttled or necked down portion that the three ports in the gas cylinder differ.

The small well in the head of the gas cylinder into which the gas first enters from the gas port.

The gas cylinder screwed into the front end of the gas cylinder tube.

The front end of the piston fitting inside of the gas cylinder like the piston of a steam or gas engine.

The large bearing rings around the piston a short way back of the piston head. There are two of these piston rings, but only one can be seen in the plate. Note that the gas piston travels back and forth inside the gas cylinder tube.

Explanation. A cartridge having been ignited the bullet, under the pressure of the expanding powder gases, travels through the barrel, and when it reaches a point 6 inches from the muzzle, passes and uncovers a port in the bottom of the barrel. The barrel pressure, which at this instant is still very high, seeks this first natural vent or outlet. Registered (aligned) with the barrel port are other similar ports in the gas cylinder tube brackets, gas cylinder tube and gas cylinder. The port in the gas cylinder is the smallest and serves to throttle the barrel pressure. The port in the gas cylinder leads into a well about one-eighth of an inch in diameter in the head of the gas cylinder. The throttle barrel pressure is conducted through this well to the gas piston plug. This pressure acts on the piston plug a very short time, namely, the time it takes the bullet to travel the 6-inch distance from the barrel port to the muzzle. Its effect is that of a sudden, severe blow on the piston plug. Under the influence of this blow the gas piston is driven to the rear and carries with it the slide to which it is assembled. When the piston has traveled about nine-sixteenths of an inch backward, the gas piston plug passes out of the cylinder. The gas expands around the piston head and into the gas cylinder tube, and is exhausted through six gas escape holes in the tube in rear of the gas cylinder tube bracket. The gas is prevented in a large measure from traveling back through the gas cylinder tube by two rings on the piston, about five-eights of an inch apart and 1¼ inches from the piston head. These rings also serve as bearings to hold the front end of the piston in the center of the gas cylinder tube after the piston head has passed out of the gas cylinder. They serve the same purposes as the piston rings of any reciprocating engine.

Movement of the Slide. (Plate 24). Having traced out the action of the gas the action of the mechanism as it moves to the rear will be considered. The first and important result of the backward movement of the slide is the compression of the recoil spring, thereby storing energy for the forward action (second phase). The recoil spring is seated at one end against the head of the

recoil spring guide, and at the other against a bushing inside the hollow piston.

Unlocking. (Plates 25 and 26). *Points to observe:*

The hammer pin in advance of the link pin.

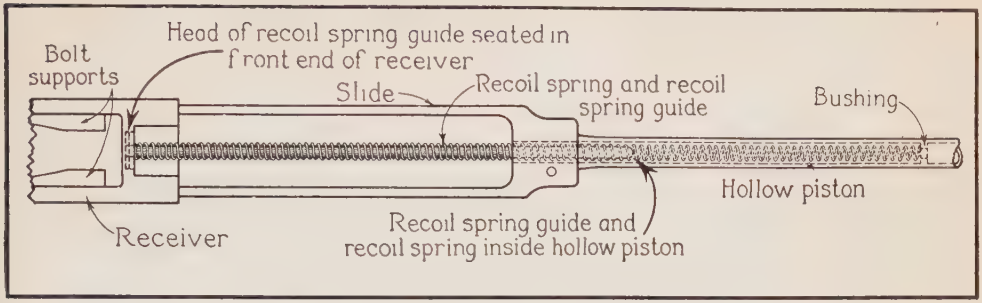

Head of recoil spring guide seated in front end of receiver
Bolt supports
Slide
Recoil spring and recoil spring guide
Bushing
Hollow piston
Receiver
Recoil spring guide and recoil spring inside hollow piston

Plate 24. Compression of the Recoil Spring.

The position of the link. When the slide starts back, the lower end of the link moves back with it, and the link revolves or tips forward about the hammer pin.

The position of the bolt lock. Its rear end in the locking recess of the receiver at the beginning, but gradually coming down out of it, pulled by the link.

The bolt supports. These are on the inside walls of the forward half of the receiver, and resemble rails with shoulders on their rear ends.

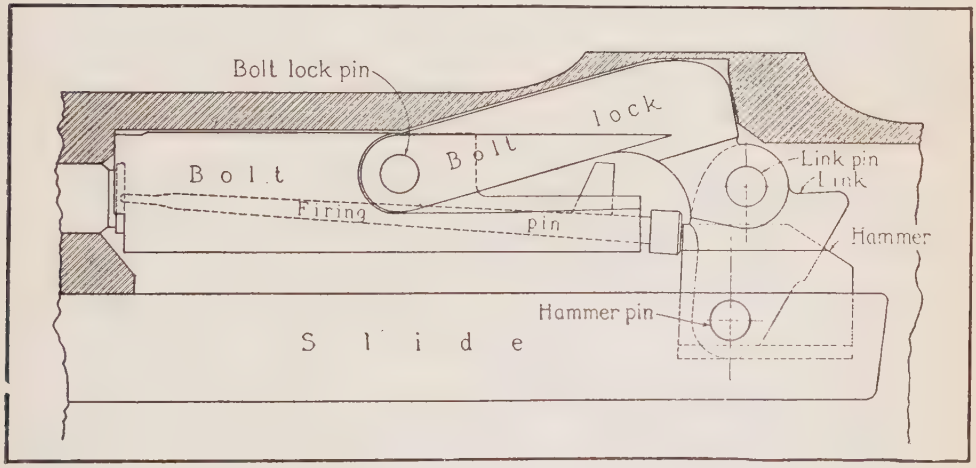


Plate 25. Position of Breech Mechanism at Instant of Firing.

Explanation. The hammer pin is slightly in advance of the link pin, about .19 of an inch. When the slide begins its motion to the rear it imparts no backward motion whatever to the bolt and bolt lock. Its only effect during the first .19 of an inch of travel is to carry the hammer from the firing pin and the hammer pin directly under the link pin. At this point the unlocking begins, the link revolves forward about the hammer pin, drawing the bolt lock down and to the rear. The motion of the bolt lock and bolt, which is zero at the instant the hammer pin passes under the link pin, accelerates from this point until the slide has traveled about 1.2 inches, at which point the lock is drawn completely down out of the locking recess and away from the locking shoulder of the receiver. It is now supported in front on the bolt supports, and the front upper shoulder of the link has revolved forward and bears upon the locking shoulder

of the bolt lock. These two influences prevent the bolt lock from revolving down below the line of backward travel of the bolt.

Withdrawal of the Firing Pin. (Plate 28). *Points to observe:*

Slot in bolt lock, front end of which is beveled.

Lug on the firing pin, forward corner of which is beveled.

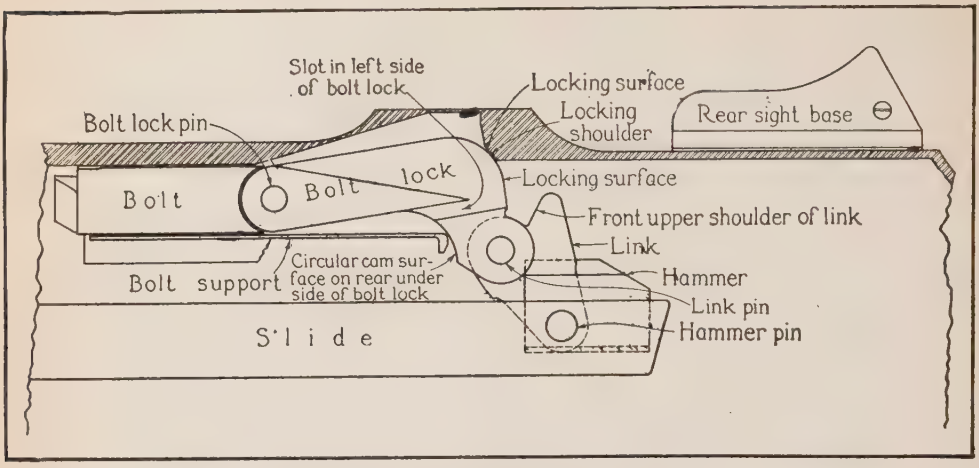


Plate 26. Breech Mechanism in Motion.

That as the bolt lock comes down out of the locking recess in the receiver, the firing pin plug enters the slot in the bolt lock.

Explanation. As the bolt lock revolves down from its locked position, a cam surface in a slot in the rear bottom side of the bolt lock comes in contact with a

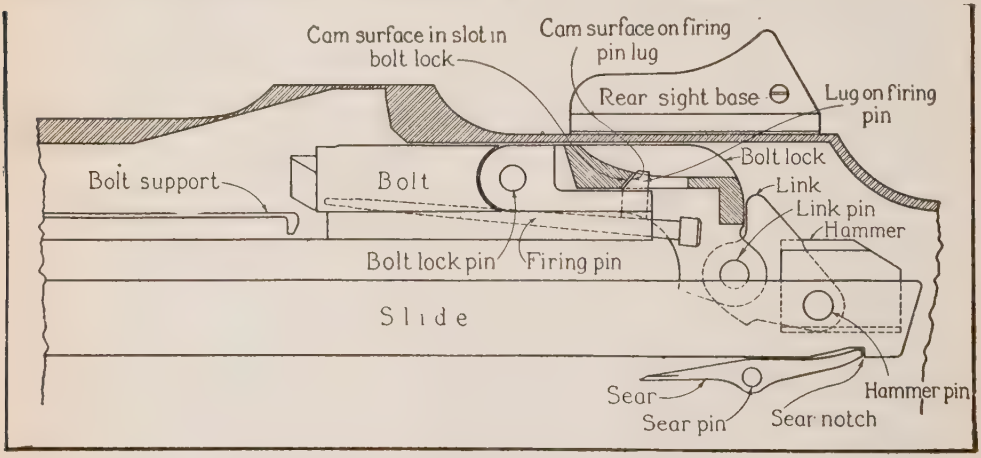


Plate 27. Breech Mechanism in Cocked Position.

similar cam surface on the firing pin lug, and cams the firing pin backward.

Extraction. (Plates 26 and 27). *Points to observe:*

The circular cam surfaces on rear under side of the bolt lock.

The rear shoulders of the bolt supports.

The slot cut in left side of the bolt lock near the rear end.

Explanation. The backward motion of the bolt begins when the bolt lock has been drawn down far enough so that the circular cam surface on its underside is operating on the rear shoulders of the bolt supports. This produces a strong lever action that starts the bolt back slowly, gradually loosening the

empty cartridge case from the chamber. The backward travel of the bolt has been very slight when the bolt lock has been completely drawn down, only about 11/32 of an inch. From this point the bolt moves to the rear, drawn by the

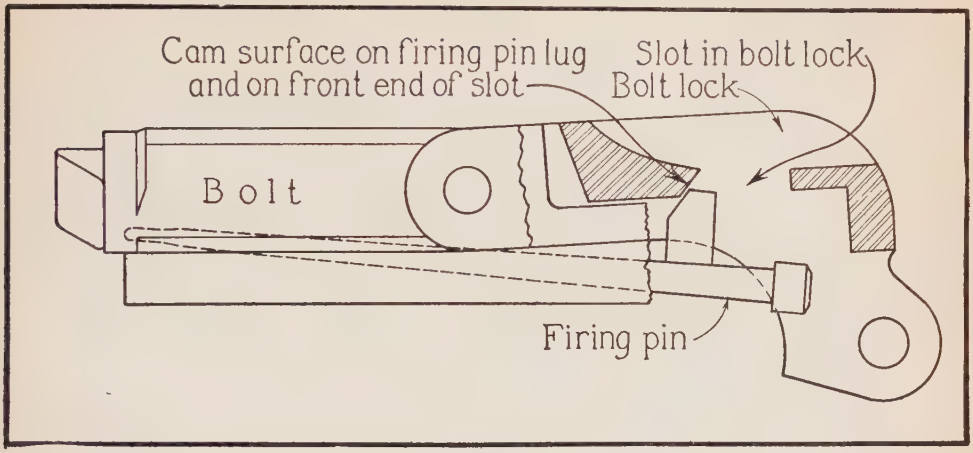


PLATE 28. Withdrawal of Firing Pin.

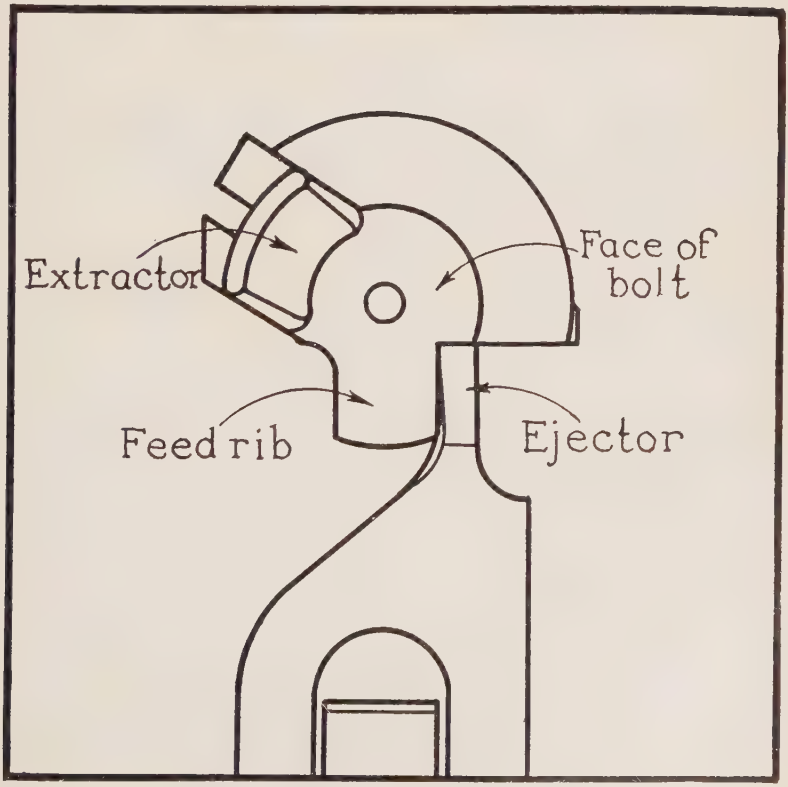


PLATE 29. Ejector and Face of Bolt.

bolt lock and link, with the same speed as the slide, and carries with it the empty cartridge case, which is held firmly in its seat on the face of the bolt by the extractor. The extractor is on the upper right hand side of the bolt next to the ejection opening in the receiver. A slot in the left side of the bolt lock,

near the back end, passes over the bolt guide, which supports the bolt lock and bolt when they are in the rear position.

Ejection. (Plate 29). *Points to observe:*

Feed rib on the bolt.
Ejector against left side of the feed rib.
Position of extractor opposite ejector.

Explanation. When the slide reaches a point about ¼ inch from the end of its travel, the base of the cartridge case strikes the ejector, which is on the left side of the feed rib of the bolt, and opposite the extractor. This action causes the cartridge case to be pivoted with considerable force about the extractor and through the ejection opening in the receiver. The front end of the cartridge case passes first out of the receiver, and is pivotd so that it strikes the outside of the receiver at a point about one inch in rear of the ejection opening. It rebounds from the receiver toward the right front.

Termination of the First Phase. (Plates 27 and 33). *Points to observe:*

Buffer head, the flat circular piece of steel seen in the rear end of the receiver.
Sear notch in the slide.
Sear nose engaging sear notch.

Explanation. The backward motion is terminated when the rear end of the slide strikes the buffer. After striking the buffer, the slide moves forward one-tenth of an inch, under the action of the recoil spring, and if the sear nose is not depressed it engages the sear notch on the slide, and the piece is cocked for the next shot.

Note. It is to be noted that the motion of the bolt, bolt lock and link mechanism began slowly, and did not attain the speed of the slide until the latter had traveled about 1¼ inches backward. This is a very important characteristic of the rifle, since on this account the mechanism is not subject to an excessive strain due to a sudden start at the instant the gas impinges upon the piston. This slow start delays the opening of the chamber sufficiently to allow the high barrel pressure to decrease.

Second Phase.

Operations in the Second Phase. The operations occurring during the second phase (forward action) are:

Action of the recoil spring.
Feeding.
Locking.
Ignition.
Termination of second phase.

Action of the Recoil Spring. (Plates 27 and 30). *Points to observe:*

Relative positions of bolt lock pin, link pin, and hammer pin, noticing that the link pin is below a line joining the other two pins.
Feed rib on the bolt extending back under the bolt lock.
Contact between front upper shoulder of link and locking shoulder of the bolt lock.

Explanation. The sear nose is depressed, disengaging the sear, and the slide moves forward under action of the recoil spring. The position of the link pin is slightly below a line joining the bolt lock pin and the hammer pin; therefore as the slide starts forward the joint at the link pin has a tendency to buckle downward. It is prevented from doing this by the tail of the feed rib on the bolt which extends backward under the bolt lock, also by the upper front shoulder of the link being in contact with the locking surface of the bolt lock. Since the joint cannot buckle, the entire mechanism moves forward with the slide, under the action of the recoil spring.

Feeding. (Plate 31). *Points to observe:*

The feed rib on the bolt.
The bullet ramp or guide on the breech of the barrel.
Front end of cartridge deflected upward and out of magazine.

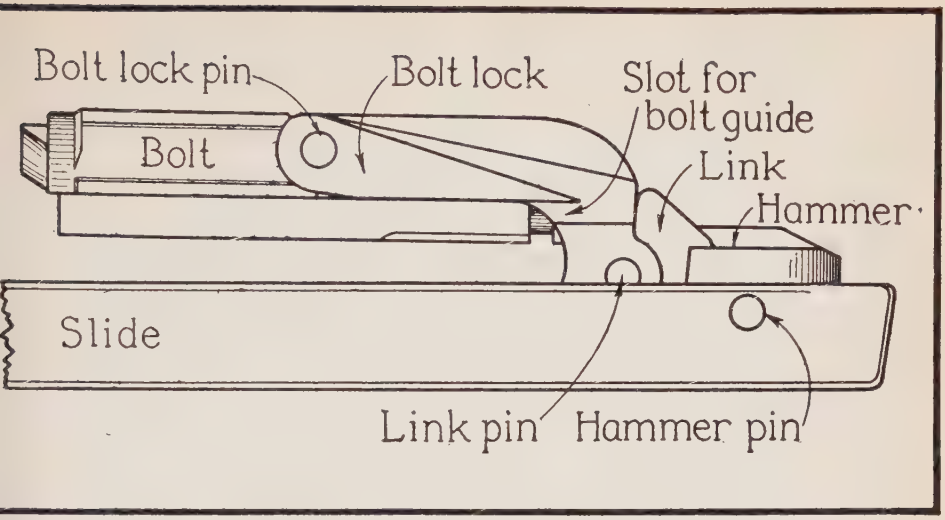


PLATE 30. Position of Parts, Breech Mechanism, Rear Position.

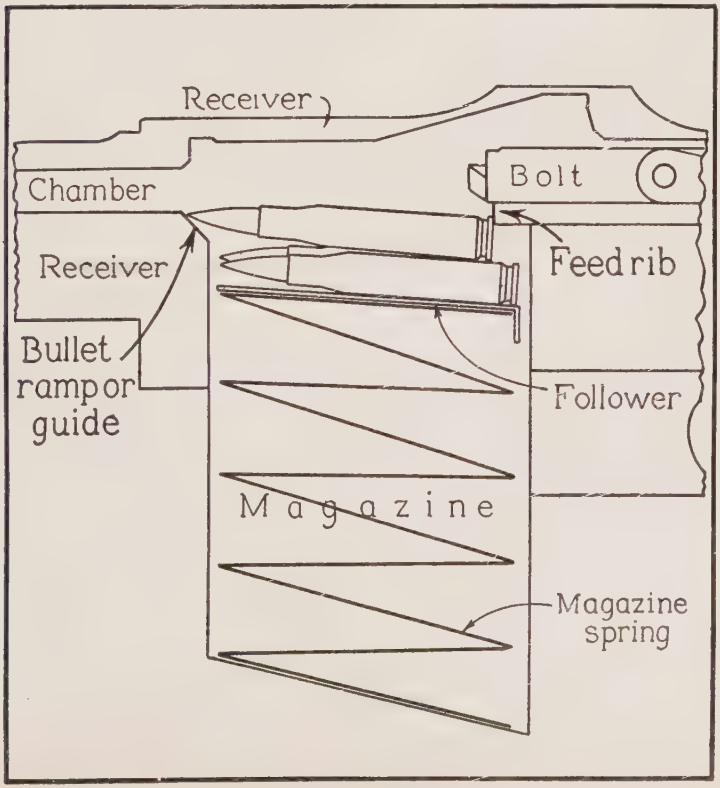


PLATE 31. Feeding.

Lips of magazine cut away and the opening enlarged about midway of the magazine.

Explanation. When the mechanism has traveled about one-quarter of an inch the front end of the feed rib strikes the base of the top cartridge, which the magazine spring and lips are holding up in its path. The cartridge is carried forward about one-quarter of an inch, when the nose of the bullet strikes the bullet ramp or guide on the breech of the barrel, and is deflected upward toward the chamber. This action also guides the front end of the cartridge from under the magazine lips. The base of the cartridge approaches the center of the magazine, where the lips are cut away and the opening enlarged, and at this point is forced out of the magazine by the magazine spring. The base of the cartridge slides across the face of the bolt and under the extractor. Should the cartridge fail to slide under the extractor, the extractor will snap over its head as the bolt reaches the forward position. When the cartridge is released by the magazine, the nose of the bullet is so far in the chamber that it is guided by the chamber from this point on.

Locking. (Plates 25, 26, and 27). *Points to observe:*

Circular cam surface on under side of bolt lock bearing against rear shoulders of the bolt supports.

Changing positions of link as it revolves upward about the hammer pin.

Rounded surface on upper rear end of the bolt lock.

Locking shoulder of the receiver.

Locking surfaces of the bolt lock and receiver.

Explanation. When the slide is 1.34 inches from its forward position the circular cam surface on the under side of the bolt lock begins to ride over the rear shoulders of the bolt supports, and the rear end of the bolt lock is cammed upward. The link pin passes up above the line joining the bolt lock pin and hammer pin. The Joint at the link pin now has a tendency to buckle upward, and the bolt lock being opposite the locking recess in the receiver, is free to and does, pivot upward about the bolt lock pin. The link revolves upward about the hammer pin, forcing the bolt lock up, and a rounded surface on the bolt lock just above the locking face slips over the locking shoulder in the receiver, giving

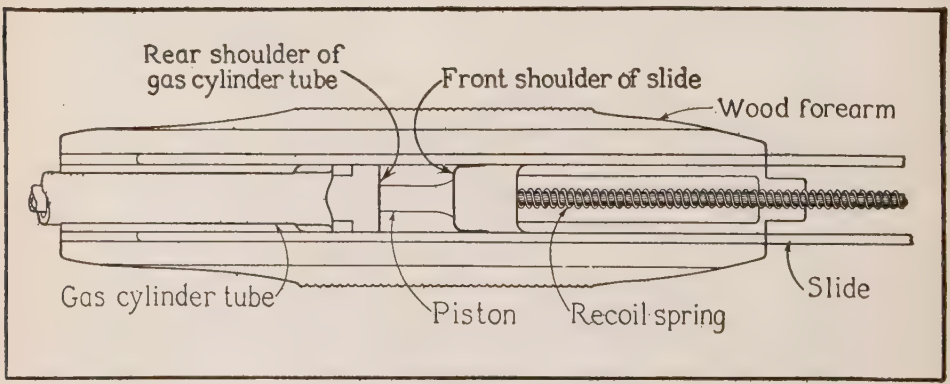


PLATE 32. Termination of Second Phase.

the lock a lever action which forces the bolt home to its final position. The two locking surfaces on the bolt lock and the receiver register as the hammer pin passes under the link pin.

Ignition of the Cartridge. (Plates 25, 27, and 28). *Points to observe:*

The lug on the firing pin.

The slot in the underside of the bolt lock.

Explanation. The lug on the firing pin is buried in the slot on the under side of the bolt lock at all times except when the bolt is locked in the forward position. Therefore, the firing pin is locked away from the face of the bolt dur-

ing all the backward and forward motion of the bolt. When the hammer pin passes under the link pin, the firing pin has been released by the bolt lock. The slide and hammer move forward about one-tenth of an inch farther and the center rib of the hammer strikes the head of the firing pin, driving it forward, and igniting the cartridge.

Termination of the Second Phase. (Plate 32). *Points to observe:*

Shoulders on forward end of the slide.

Shoulder at rear end of gas cylinder tube.

Explanation. The forward end of the slide strikes a shoulder at the rear end of the gas cylinder tube which terminates the forward motion. The forward motion is not terminated by the hammer on the firing pin. This can be seen by examining the head of the firing pin when the forearm is assembled to the receiver, and the bolt mechanism is in the forward position. The firing pin has still about one-sixteenth of an inch clearance from its extreme forward position.

Note. The locking shoulder of the receiver is inclined forward. Its surface is perpendicular to the line through the bolt lock which the shock of the explosion follows; therefore, the force of this shock is exerted squarely against this normal surface. It should be noted that the speed of the bolt mechanism is slowed down gradually from the instant that the bolt lock starts to rise until the hammer pin passes under the link pin, when its speed is zero.

The Buffer. (Plate 33). The buffer is placed in the automatic rifle for a double purpose; it takes up practically all shock of the recoil, and it decreases the cyclic rate of the gun from 1200 shots per minute to 600 shots per minute.

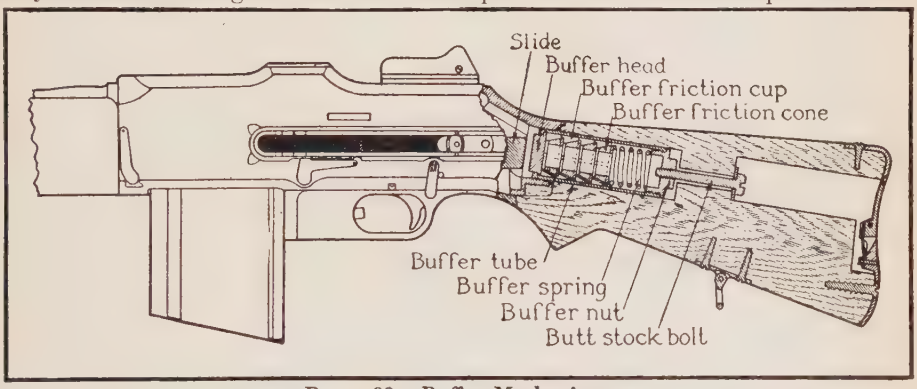


PLATE 33. Buffer Mechanism.

The buffer system consists of a tube, in which are placed successively from front to rear, the buffer head, a brass friction cup with concave interior which is split to allow for expansion; a steel cone to fit the cup (four of these cups and cones placed in series); a buffer spring; and finally a buffer nut, which is screwed into the rear end of the tube and forms a seat for the spring. The buffer is filled with a heavy oil when first assembled. Breakages in it are exceedingly rare and it seldom needs attention.

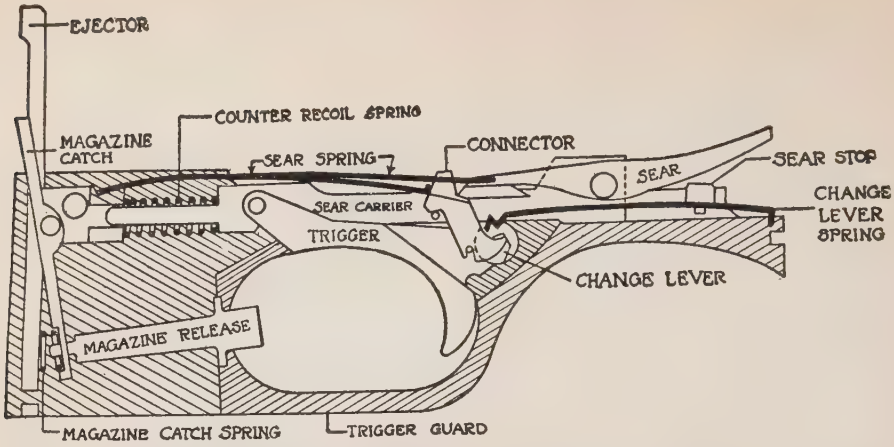
When the recoiling parts come back, the slide striking the buffer head moves it to the rear, and forces the cups over the cones, causing them to expand tightly against the inner walls of the tube. This produces considerable friction as the cups move back and compress the buffer spring. Thus the rearward motion of the slide is checked gradually and there is practically no rebound. The spring returns the buffer head, cups and cones to their original positions.

Functioning of the Trigger Mechanism.

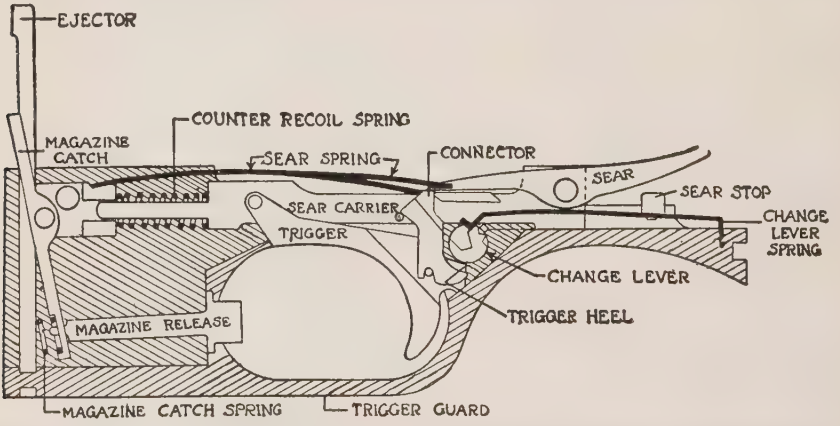
The functioning of the trigger mechanism is taken up in three phases: semi-automatic, automatic, and safe.

Semi-Automatic. (Plates 34, 35, and 36). *Points to observe:*

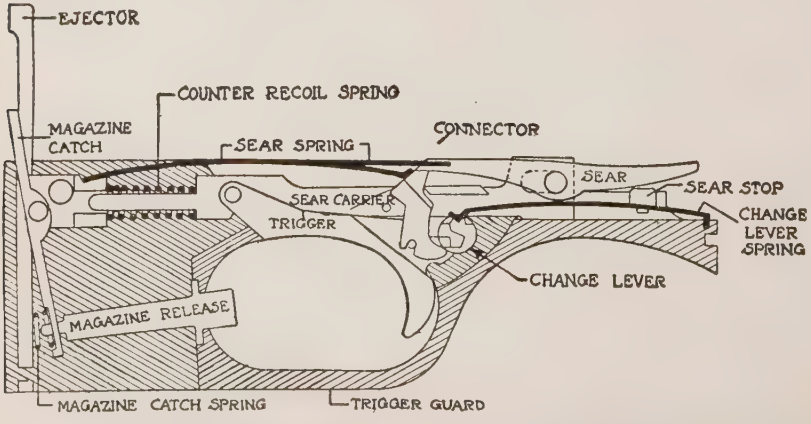
The shank of the change lever, which is in effect a large circular bolt or pin passing through from one side to the other of the trigger guard, just



SHOWING TRIGGER MECHANISM SINGLE SHOT FIRING. THE CONNECTOR CAMMED FORWARD FROM UNDER THE FORWARD END OF THE SEAR BY THE UNDER CAM SURFACE OF THE SEAR CARRIER, PERMITS THE FORWARD END OF THE SEAR TO RETURN TO POSITION UNDER TENSION OF SEAR SPRING, CAUSING THE REAR END OF THE SEAR TO ENGAGE IN THE SEAR NOTCH IN THE SIDE.



SHOWING TRIGGER MECHANISM SET ON SAFE. CYLINDRICAL PORTION OF THE CHANGE LEVER RESTING OVER THE HEEL OF THE TRIGGER PREVENTS THE UPWARD MOVEMENT OF THE TRIGGER AND THE RELEASING OF THE SEAR.



SHOWING TRIGGER MECHANISM AUTOMATIC FIRING. TOE OF THE CONNECTOR ENGAGES UNDER THE CONNECTOR STUD ON THE CHANGE LEVER, PREVENTING THE CONNECTOR FROM RISING SUFFICIENTLY HIGH TO BE CAMMED FORWARD FROM UNDER THE FORE END OF THE SEAR; HEAD OF THE CONNECTOR HOLDING UP FORE END OF SEAR, DEPRESSING REAR, PREVENTING THE REAR END OF SEAR FROM ENGAGING IN THE SEAR NOTCH OF THE SLIDE.

PLATE 34. Functioning of the Trigger Mechanism.

above the rear shoulders of the trigger. However, the shank is cut out partly on one side so that a recess is left in it large enough to accommodate the rear shoulders of the trigger.

The cam surface on the metal that joins the two sides of the sear carrier just in rear of the connector.

The profile of the head of the connector; flat across the top, a cam surface that slopes down and toward the front (sear spring ramp), and in rear a straight drop of about ⅛ inch, below which is a cam surface sloping slightly to the rear (sear carrier ramp).

Explanation. Follow this explanation out on the plates step by step:

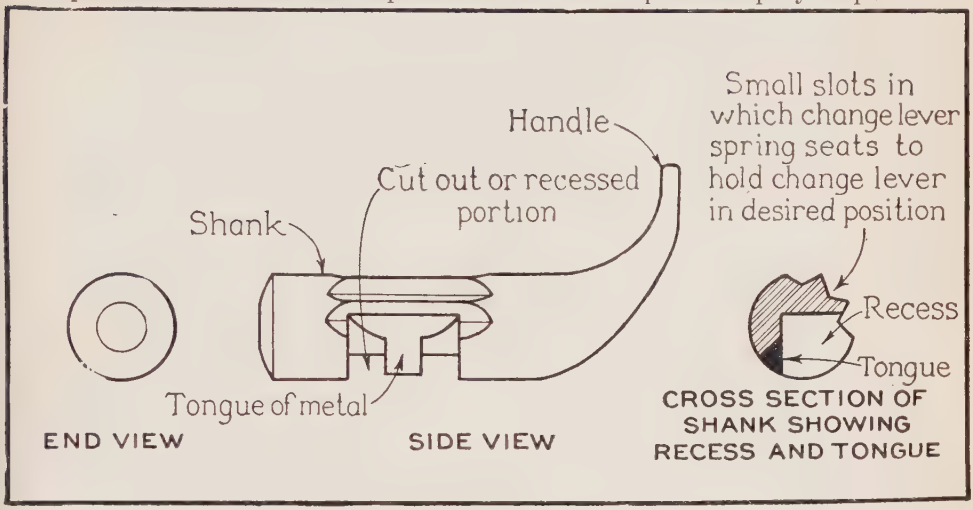


PLATE 35. Change Lever.

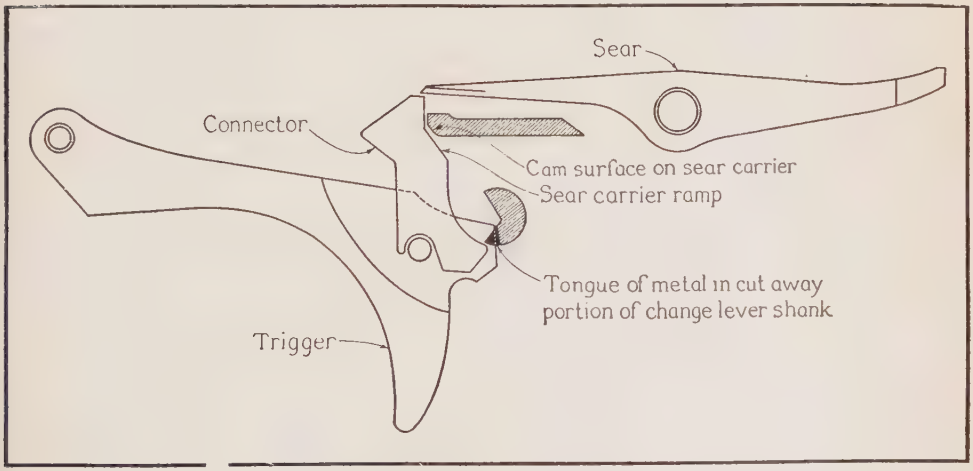


PLATE 36. Trigger Mechanism, Semi-Automatic Fire.

The connector, its toe to the rear, rests on the connector pin between the shoulders of the trigger.

The shoulders of the trigger and the toe of the connector project back under the shank of the change lever.

The change lever being set at "F," the cutaway portion of the change lever shank is above the shoulders of the trigger and toe of the connector, and when the trigger is pulled its shoulders and the connector are free to, and do rise.

The front end of the sear is above the head of the connector.

As the connector moves upward it raises the front end of the sear.

The sear being pivoted on the sear pin, this motion depresses the sear nose, disengaging it from the sear notch in the slide.

The connector continuing to rise, a cam surface on the rear face of the connector head (sear carrier ramp), operating on a similar cam surface on the under side of the sear carrier, cams the head of the connector forward from under the front end of the sear.

The forward movement of the connector head is limited by the connector stop.

The outer leaves of the sear spring operating on the shoulders on the front end of the sear now depress it and raise the sear nose into position to engage again the sear notch when the slide comes to the rear.

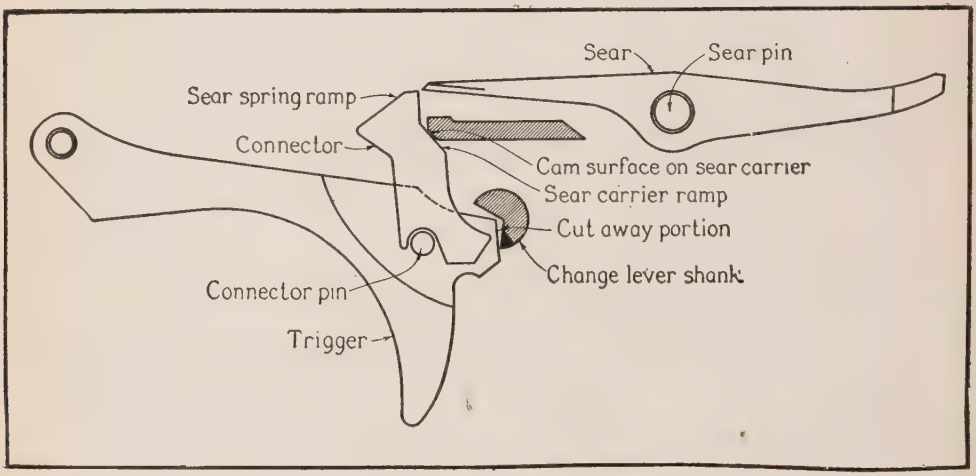


PLATE 37. Trigger Mechanism, Automatic Fire.

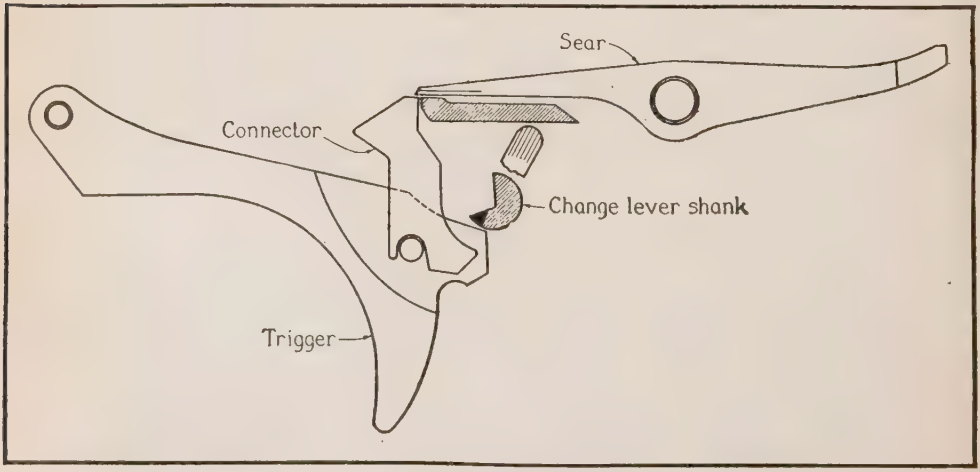


PLATE 38. Trigger Mechanism on Safe.

There is considerable shock when the movement of the slide is terminated by the sear nose engaging in the sear notch. The sear being firmly held in the sear carrier by the sear pin, this shock is transmitted through the sear to the sear carrier, which moves forward against the counter-recoil spring, compressing it. The counter-recoil spring absorbs the shock and returns the sear carrier to position. These movements of the sear carrier are allowed for by the elongated

trigger pin holes in the sear carrier and the elongated sear pin holes in the trigger guard, which permit the sear carrier to ride freely back and forth.

The center leaf of the sear spring, operating on the cam surface on the front face of the connector head (sear spring ramp), depresses the connector when the trigger is released. This depresses the shoulders of the trigger and returns it to position.

Automatic. (Plates 34, 35, and 37). *Points to observe:*

The stud or little tongue of metal in the center and at the lower edge of the slot or recess cut in the shank of the change lever.

Explanation. With the change lever set at "A," a stud in the cutaway portion of the change lever shank is placed directly over the toe of the connector. Pressure upon the trigger raises the connector until its toe comes in contact with the stud of the change lever. This prevents the connector from rising far enough to allow the cam surfaces on the connector and sear carrier to cam it forward from underneath the front end of the sear, but raises the front end of the sear sufficiently to depress the sear nose from the sear notch in the slide. As long as the trigger is held the slide will ride freely back and forth over the sear. The rifle will continue to fire until the magazine is empty or the trigger is released. When the trigger is released the sear spring forces both connector and front of sear back down to their original positions, and the sear again engages the sear notch when the slide comes to the rear.

Safe. (Plates 34 and 38). With the change lever set at "S," the rounded, solid portion of the change lever shank is turned directly over the shoulders on the upper rear end of the trigger, and the cutaway portion is turned up, away from the trigger. When the trigger is pressed its shoulders strike the rounded portion of the change lever shank, preventing any movement of the trigger. Consequently the connector does not move, nor is the front end of the sear raised.

CHAPTER V.

MACHINE RIFLE. STOPPAGES. IMMEDIATE ACTION. CARE AND CLEANING.

STOPPAGES.

Classification of Stoppages.

Stoppages are divided into two general classes:

Prolonged, which are due to failure of some part which cannot be replaced or to a failure which cannot be remedied in the field under fire, or without expert assistance or machine shop facilities.

Temporary, due to:

Failure of some part of the rifle of which a duplicate is carried.

Faulty ammunition.

Improper care of the rifle.

Ignorance on the part of the automatic rifleman.

The training of the soldier deals entirely with temporary stoppages.

Causes of Stoppages.

Dirt. (Natural fouling incident to firing and also to careless cleaning.)

Insufficient Oil. (From failure to oil and because of oil burning up during firing.)

Extraneous Matter in Working Parts. (Due to poor cleaning, brass chipped from cartridges, breakages, blown primer.)

Improper Assembly of Rifle. (Gas ports not registered, middle prong of sear spring riding on one wall of sear carrier, etc.)

Breakages. (Due to wrong assembly, oversize or undersize parts, burrs, incorrect heat treatment, overheating of parts incident to firing.)

Burred Parts. (Due to improper assembly, use of force, dirt, grit and foreign matter in mechanism.)

Magazine troubles. (Due to bent or dented magazines, worn magazine catch notch, foreign matter (as blown primer) between lips of magazine and top cartridge.)

Faulty Ammunition. (Failure of primer or charge, battered cartridges.)

Excessive Play in Parts. (Due to wear in stripping parts not supposed to be stripped—as removing barrel from receiver.)

Ruptured Cartridges. (Due to excessive head space. Head space is the distance between the face of the bolt and the shoulder of a standard steel test cartridge. If excessive head space exists when the cartridge is chambered properly, the cartridge case will be forced against the walls of the chamber at the instant of explosion. The cartridge case base will be driven to the rear, as it is not supported by the bolt. This results in rupture about one-half inch from the base of the cartridge. In effect, the action during the period of gas pressure within the cartridge case is the same as if the chamber gripped all the surface of the cartridge case except the portion about one-half inch above the base. The pressure within the cartridge case being 50,000 pounds per square inch, the ungripped portion of the case is torn from the gripped part and forced back against the face of the bolt. The case is never pulled apart by the extractor).

The table of stoppages in this chapter covers all ordinary stoppages, and a knowledge of the data it furnishes is desirable for the automatic rifleman. It must be remembered, however, that immediate action is always applied as the

Classified Table of Stoppages and Remedies

Position	Stoppage	Cause	Remedy in field
First position Operating handle fully home.	1. Failure to feed.	1. Magazine troubles— a. Magazine not fully home. b. Obstruction between lips of magazine and top cartridge. c. Weak magazine spring. d. Magazine dirty. e. Magazine tube or lips dented or bent. f. Magazine catch notch worn.	1. a. Push magazine fully home. b. Change magazine. c. Change magazine. d. Change magazine, clean later. e. Change magazine. f. Change magazine.
	2. Failure to fire.	2. a. Broken or short firing pin. b. Weak recoil spring. c. Excessive friction. d. Faulty ammunition—defective primers or charges.	2. a. Change firing pin. b. Change recoil spring. c. Clean and oil friction surfaces, chamber and ammunition.
	3. Insufficient gas.	3. a. Gas cylinder not properly adjusted. b. Gas ports clogged. c. Piston binding account dirty piston and cylinder. d. Dirty chamber. e. Lack of oil.	3. a. Correct adjustment of gas cylinder. b. Turn cylinder to next larger port. Clean at first opportunity. c. Turn cylinder to next larger port. Clean and oil at first opportunity. d. Turn cylinder to next larger port. Oil chamber and ammunition. Clean and oil chamber at first opportunity. e. Oil chamber, ammunition and friction surfaces.
Second position Operating handle strikes hammer pin anywhere from fully closed to a point where operating handle plunger pin rides over raised shoulders on ribs of operating handle guideway.	1. Obstruction or burrowed surface.	1. Extraneous matter of burrs— a. On face of the bolt. b. In breech recess where bolt and receiver join. c. On bolt lock. d. In bolt lock recess.	1. Feel on face of bolt; in receiver and chamber; on bolt lock; and in bolt lock recess, for burrs or extraneous matter. Remove extraneous matter or burrs.
	2. Faulty ammunition.	2. Battered round.	
Third position Operating handle strikes hammer pir between second position and point directly over "F" on receiver.	1. Ruptured cartridge.	1. Excessive head space.	1. Use ruptured cartridge extractor to remove ruptured cartridge case. If recurs, clean and oil chamber and oil ammunition.
	2. Failure to feed completely.	2. a. Broken firing pin protruding from face of bolt. b. Other obstruction that prevents base of cartridge from sliding up across face of bolt.	2. a. Replace firing pin. b. Remove obstruction.
	3. Mechanism wedged tightly.	3. Obstruction — extraneous matter between bolt support and bolt lock.	3. Remove obstruction.
	4. Faulty ammunition.	4. Battered round.	
Fourth position Operating handle strikes hammer pin between third position and all the way to the rear.	1. Failure to extract.	1. a. Dirty, rusted or pitted chamber. b. Dirt under extractor. c. Defective extractor. d. Defective extractor spring. e. Defective ammunition—soft rims on cartridges.	1. Use cleaning rod to remove empty cartridge case and then— a. Clean and oil chamber and oil ammunition. b. Clean face of bolt and extractor. c. Change extractor. d. Change extractor spring.

Position	Stoppage	Cause	Remedy in field
Fourth position (continued)	2. Trigger will not release slide, the piece being cocked.	2. Trouble in trigger mechanism—	2.
		a. Change lever set on "S."	a. Set change lever on "F" or "A."
		b. Improper assembly which results in failure of center prong of sear spring to push connector back under front end of sear.	b. Take out trigger guard and examine. Replace necessary parts and assemble properly.
		c. Defective sear spring.	c. Same.
		d. Defective or lost connector.	d. Same.
	3. Obstruction.	3. Extraneous matter between ejector and bolt.	3. Remove obstruction.

NOTE.—The first thing to do in case of any stoppage is to tap the magazine, pull back and push forward the operating handle and try to fire again. This will remove the cause of a large percentage of stoppages.

NOTE 2.—If the stoppage recurs, pull back the operating handle slowly to determine position of stoppage. Then apply proper remedy.

NOTE 3.—If no ruptured cartridge extractor is available, oil the nose of a cartridge and cover it with a small amount of dirt or sand; then place it in the chamber and let the bolt go forward. Ruptured cases may often be removed in this manner. Clean and oil the chamber and bore very carefully after doing this.

initial procedure in the reduction of any stoppage. Occasionally immediate action does not remedy the trouble. In such cases, the automatic rifleman must investigate and apply his knowledge of functioning and stoppages in general.

The Most Common Stoppages.

The stoppages discussed in the following paragraphs are those most likely to be met.

Faulty Ammunition. Stoppages due to bulged or otherwise defective cartridge cases, or misfires from rounds with defective primers or charges, occur in practically all positions. Such stoppages are listed in columns two and three of the table. They are not discussed in detail because the first step in immediate action eliminates a faulty round, and two such rounds will rarely be found together.

Friction. Dirt, burred or damaged parts, and lack of oil cause friction that slows down or entirely stops movement of the parts. Attention to cleaning and oiling reduces difficulty from friction.

First Position Stoppages.

Failure to Feed. Traceable to defect, dirt, or obstructions, in, of, or concerning the magazine, that result in the top cartridge not being held up in the path of the feed rib of the bolt, thus causing the bolt to go home on an empty chamber. A common fault is failure to push the magazine fully home when inserting it in the rifle. Another example of these stoppages in an obstruction between the lips of the magazine and the top cartridge that prevents the cartridge from raising high enough in the magazine. It may be repeated that failures to feed are traceable to the magazine.

Failure to Fire. This is a failure to secure ignition of the cartridge after the bolt is locked in the forward position. A broken or short firing pin will cause it; also a weak recoil spring or excessive friction or both that exhaust the entire strength of the recoil spring in accomplishing the locking of the bolt, not leaving enough force in the spring to move the slide and hammer forward the remaining short distance necessary to strike the firing pin.

Insufficient Gas. This means a failure to obtain the normal gas pressure (gas ports clogged or not registered) or that excessive dirt and friction cause so much

binding and sticking that the normal gas pressure is insufficient to drive the slide all the way back. Dirty or pitted chambers are a common source of trouble, making extraction difficult. The empty cartridge case sticks in the chamber and the gas pressure is exhausted loosening it, leaving very little or no pressure to drive the slide back. Frequently the slide goes back part way, and then returns to the forward position under action of the recoil spring because it did not recoil far enough for the sear to engage in the sear notch in the slide. In cold weather the gun requires more gas.

Second Position Stoppages.

In this position the bolt is stopped just before it is fully home in the forward position. That the stoppage may result from extraneous matter or burrs on the face of the bolt, or in the breech recess between the rear end of the barrel and the face of the bolt, is obvious. Also, obstructions or burrs may prevent the bolt lock from rising all the way into the bolt lock recess. A specific instance is a blown primer above the bolt lock in the bolt lock recess. In the second position, the bolt may go far enough forward for the firing pin to dent the primer slightly. Inexperienced gunners are sometimes misled by this fact, erroneously thinking a first position stoppage has occurred, and they do not promptly apply the remedy for second position stoppages.

Third Position Stoppages.

Ruptured Case. This stoppage is due to excessive head space. When the immense pressure following the ignition of the charge is taken up by the cartridge case, the latter not being properly supported by the bolt will rupture about five-eights of an inch from the base. A temporary preventive for such stoppages is to clean and oil the chamber thoroughly and oil the ammunition.

Failure to Feed Completely. This stoppage may be caused by the end of a broken firing pin protruding through the firing pin hole in the face of the bolt. The cartridge is then kept from sliding under the extractor as the bolt moves forward and a third position stoppage will result. The cartridge will show an abrasion near the base.

Fourth Position Stoppages.

Failure to Extract. This stoppage is generally due to a dirty or pitted chamber. Frequently the empty case will have a small part of the rim pulled off by the extractor. This case can be removed only by the use of the cleaning rod. A few drops of oil in the magazine will ordinarily prevent this stoppage temporarily. The only permanent remedy is a thorough cleaning of the chamber. If the gun develops this stoppage before a large number of rounds has been fired, it is not the fault of the gun but is due to improper cleaning after the last firing.

Failure of the Trigger Mechanism. Another fourth-position stoppage is that in which the piece is cocked and the trigger mechanism will not release the sear when set at "A" or "F." This stoppage is due to a broken sear spring, a broken or lost connector, an improper assembling of the sear spring, or to any cause which results in failure of the center prong of the sear spring to cam the connector under the front part of the sear.

IMMEDIATE ACTION.

A **stoppage** is a failure of the automatic rifle to function properly.

Immediate action is the unhesitating application of a probable remedy for a stoppage.

The various steps prescribed in this chapter constitute a procedure that will accomplish the reduction of all except unusual stoppages. These steps must be so well learned and practiced that the automatic rifleman will apply them without hesitation or delay when a stoppage occurs. The natural tendency to look first at the rifle to see why it failed to function, and then to apply immediate

action, must be checked and overcome. It is a time waster. Do not concern yourself with the cause of the stoppage. Apply immediate action promptly instead, and so get the rifle into action again with the minimum loss of time, and the minimum of conscious mental effort or nerve strain.

In this chapter, the causes of stoppages have been discussed. *Causes are disregarded in immediate action instruction* because the desire is to eliminate conscious thought from immediate action, at least to the greatest possible extent, and have it carried out by the automatic rifleman as though he were a machine, doing it automatically, by habit. A stoppage that immediate action will correct should rarely keep an automatic rifle out of action as much as 50 seconds—not more than one such stoppage out of ten should take more than 15 seconds to overcome.

The First Step.

If the rifle fails to function, tap the magazine, pull back and push forward the operating handle, re-aim, and try to fire again.[1] This is the first thing to do in the case of any stoppage. It will reduce practically 90 per cent of those that occur. In tapping the magazine, strike its base hard enough to insure having it fully seated in the receiver.

The Second Step.

If the rifle still does not function, pull back the operating handle easily to determine the position of the hammer pin, and then drop out the magazine.

Positions of Stoppages.

Stoppages are divided into four groups to facilitate rapid corrections, and the group is determined by the position where the bolt stops. This position is found by pulling the operating handle to the rear easily until it strikes against the hammer pin. The operating handle does not work back and forth when the rifle is firing, but remains in the forward position. If a malfunction occurs that stops the bolt about two-thirds of the way forward, the operating handle may be moved back to that point very easily. There, however, it will strike against the hammer pin and any further movement to the rear will be made against the resistance of the recoil spring and require greater pressure on the operating handle. This makes it very easy to know by sense of feel when the operating handle has met the hammer pin.

First Position. When the bolt is all the way forward, the operating handle will strike the hammer pin immediately when an attempt is made to move it to the rear. This indicates a first position stoppage. (Plate 39.)

Second Position. A second position stoppage is indicated when the operating handle strikes the hammer pin anywhere from the first position back to a point where the operating handle plunger pin rides over the raised shoulders on the ribs of the operating handle guideway.

Third Position. When a third position stoppage occurs, the operating handle strikes the hammer pin anywhere from the rear boundary of the second position back to a point directly over "F" of the change lever setting.

Fourth Position. The fourth position is anywhere from directly over the "F," back to the rearmost limit of travel.

The second step of immediate action, as given above, will indicate in what position stoppage has occurred. The succeeding steps are dependent on the position.

First Position Stoppages. If the stoppage is in the first position, pull the operating handle all the way back and watch the ejection.

(1) If nothing is ejected, change magazine.

(2) If a loaded shell is ejected, change the firing pin.

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[1]See Note 1, under Table of Stoppages.

(3) If an empty cartridge case is ejected, examine and correct adjustment of gas cylinder, turning to the next larger port if necessary. If the same stoppage

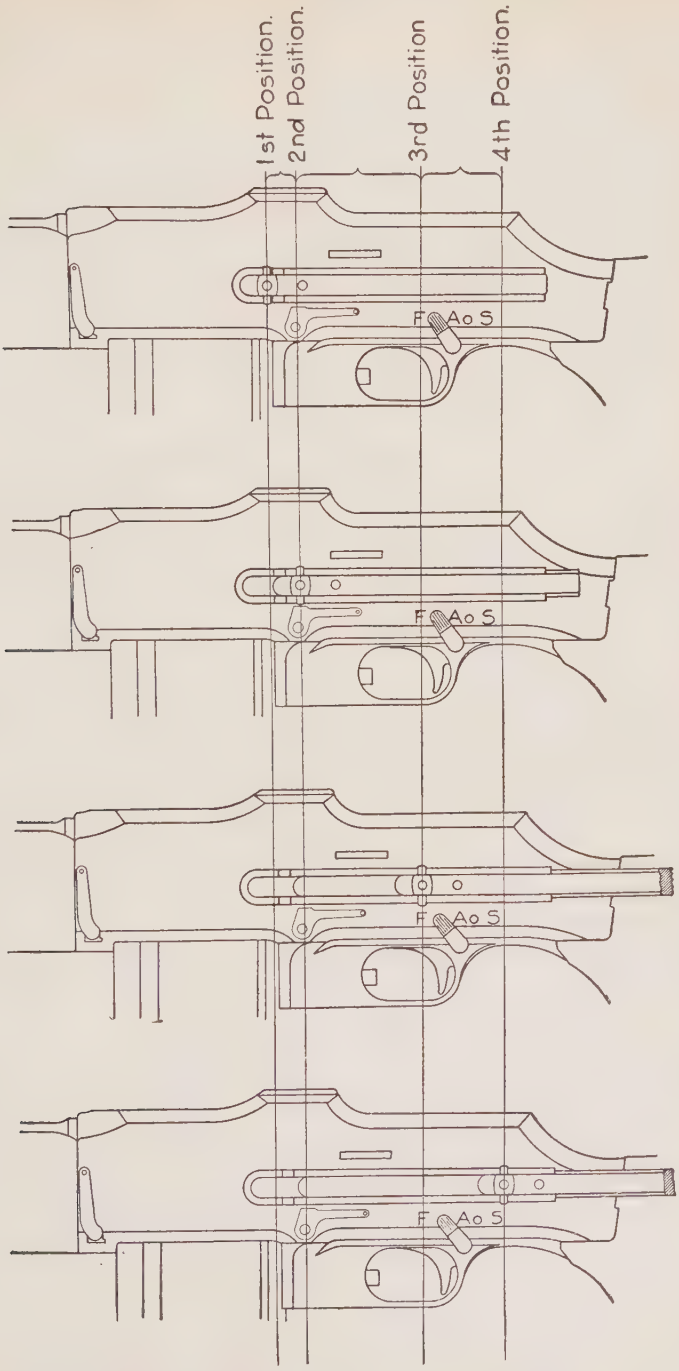

PLATE 39. Positions of the Operating Handle.

recurs, scrub the chamber with the chamber brush.

Second Position Stoppages. If the stoppage is in the second position feel for

and remove the obstruction or burr on the face of the bolt, in the rear of the chamber, in the bolt lock recess, or on the bolt lock.

Third Position Stoppages. If the stoppage is in the third position:

(1) Use the ruptured cartridge extractor to remove the front part of a ruptured case from the chamber.

(2) If the stoppage recurs and is not due to a ruptured cartridge, examine the face of the bolt for an obstruction.

NOTE. If no ruptured cartridge extractor is available, oil and sand the nose of a bullet, put it in the chamber and let the bolt go forward. Pull back the operating handle. This will usually extract the ruptured cartridge case. Clean andoil the chamber after doing this.

Fourth Position Stoppages. If the stoppage is in the fourth position:

(1) If the slide moved after the trigger was pulled, use a cleaning rod to push cartridge case from the chamber.

(2) If the trigger cannot be pulled, or if the slide did not move when the trigger was pulled:

(a) See if change lever is set on "Safe."

(b) Take out trigger guard and correct fault in the trigger mechanism.

Narrative Examples of Immediate Action.

(1) The rifle is set for semi-automatic fire. The firer aims and squeezes the trigger and the rifle fires. He aims and squeezes the trigger again, and again the rifle fires. He aims and squeezes the trigger for the third shot, but the rifle does not fire. He taps the magazine, pulls back the operating handle, re-aims, and squeezes the trigger. The rifle fires, and he continues firing without further trouble. Time out of action, approximately four seconds. Notice that he did not lose time by looking to see what was wrong before applying the immediate action, nor did he lose time afterward trying to find out what had been wrong.

(2) The rifle is set for semi-automatic fire. The firer aims and squeezes the trigger and the rifle fires. He continues firing for say six shots. For the seventh shot he aims and squeezes the trigger, but the rifle does not fire. He taps the magazine, pulls back the operating handle, re-aims, squeezes the trigger, and again the rifle does not fire. He pulls back the operating handle easily and finds that the stoppage is in the third position. Drops out the magazine. Uses the ruptured cartridge extractor, replaces the magazine and goes on firing. Rifle out of action approximately 30 seconds.

Precaution as to Ammunition. Unless on the range and actually on the firing point. all ammunition for practical instruction in immediate action must be checked to insure that no live cartridges are used.

CARE AND CLEANING.

The importance of a thorough knowledge of how to care for and clean the automatic rifle cannot be over-emphasized. The kind of attention given to the weapon determines largely whether or not it will shoot accurately and function successfully when needed. The automatic rifle is not only a firearm for the accurate projection of bullets to considerable range, but it also a gas engine. The bore and chamber must be kept in perfect condition for accurate shooting. Also it is just as important that the gas system, chamber and operating mechanism be kept in perfect condition for efficient functioning. Soldiers familiar with the service rifle only are liable to think the job completed with a proper cleaning of the bore. It must be realized that the mechanism requires the same care that should be devoted to all fine pieces of machinery.

The First Step in Cleaning. The first step in cleaning an automatic rifle is to strip it as in field stripping and in addition remove the gas cylinder from the gas cylinder tube. It should be noted that the action of primer and powder fouling extends to all parts with which the gas comes in contact, namely, the

bore, chamber, piston, gas cylinder, gas cylinder tube, and the included gas ports.

Action of Primer and Powder Gases in the Bore. It has been thought heretofore that corrosion in the bores of small arms might be due to the action of gas actually squeezed into the pores of the metal. Investigation has shown that this is not the case. The bore of a small-arm, under the action of the pressure and heat of the burning powder gases is hardened in a manner similar to that which forms the so-called case hardened surface on steel. Under the further action of heat, pressure, and abrasion, the hardened surface becomes covered with minute cracks. These cracks normally follow the tool marks and are of very small size. They extend, however, from the surface of the bore to depths approximating a maximum of .0015 of an inch. These minute cracks accumulate fouling which is difficult to remove by merely wiping, and a bore on superficial cleaning might appear to be in perfect condition, and yet might subsequently rust from the action of fouling and moisture remaining in these cracks.

The firing of a ball cartridge deposits in the bore the products of combustion of the powder and primer, together with plating or smears of metal from the jacket of the bullet. The combustion of the powder, being very complete, usually leaves a fouling which consists of an almost harmless ash. The combustion of the primer mixture, however, results in the deposit of a salt known as potassium chloride, akin to common table salt. This salt is deposited all over the surface of the bore and gas system, and in all cracks and tool marks. When first deposited it is harmless, but like common table salt it quickly absorbs moisture from the air. Particularly it absorbs moisture as soon as the humidity has increased after nightfall. Steel rusts very quickly when covered with wet salt. This salt, like common table salt is not dissolved, and is little affected by oil or by any solution or solvents containing oil, and will continue to absorb moisture even when saturated with oil. It is, however, readily dissolved in water or in solutions containing water, just as table salt may be thus dissolved. The proper method of cleaning is therefore to dissolve all of this salt from the bore, surfaces, cracks, and tool marks with which it comes into contact by using water or solutions containing water, then to dry these parts thoroughly, and finally to protect these parts and surfaces with a film of oil or grease. Oil or solutions containing oil will not clean the bore or gas system free from fouling—only water or solutions containing water will do this.

Methods of Ordinary Cleaning After Firing. As the receiver of the automatic rifle is of such construction that the bore cannot be cleaned from the breech, it is necessary to clean it from the muzzle. Care should be taken that the cleaning rod does not rub or wear the muzzle. It is not necessary or desirable to plug the gas port. Use a barrack cleaning rod having a slotted tip, such as the machine gun cleaning rod. Swab the bore thoroughly with three or four cut flannel patches, saturated with hot water and issue soap, hot water alone, or in the absence of these, cold water. While the bore is wet a brass or bronze wire brush, if available, should be run through the bore, all the way through, then all the way back, three or four times. The bore should then again be swabbed with several cut flannel patches wet as above. Then wipe the cleaning rod dry, and using dry, clean flannel patches, thoroughly swab the bore until it is perfectly dry and clean. Clean and dry the gas port with a match stick. Clean and dry the chamber by means of flannel patches on the chamber cleaning brush. Then make the examination for metal fouling as described in the following paragraph. If no metal fouling be present, finally wipe the cleaning rod dry, saturate a clean flannel patch in sperm oil, and swab the bore and chamber with the patch, finally drawing the patch smoothly through the bore and out of the muzzle, allowing the cleaning rod to turn with the rifling. Only sperm oil should be used to protect the bore, gas system, and other metal part, while in use. Cosmic is too thick for efficient lubrication of the working parts, collects

dirt, clogs the gas ports, and increases the accumulation of carbon. Cosmic should always be used, however, when the rifle is laid away or placed in storage for some time, and when it is not subjected to periodic cleaning at short intervals.

The bore should be cleaned in the above manner not later than the evening of every day on which the rifle is fired. It is desirable to examine the bore within 48 hours of this cleaning, and if necessary, clean again in the same manner. All oil should be wiped from the bore and chamber before firing. The rifle should never be fired if the bore contains cosmic, as very excessive pressure may result, or the barrel may even burst.

Removal of Metal Fouling. After the bore has been cleaned and dried as above, and before it has been oiled, it should be examined to see if it contains metal fouling. Place a piece of clean, white paper in the ejection opening of the receiver, at an angle of 45 degrees, so it will reflect light into the bore. Hold the ejection opening towards the light, and examine the bore from the muzzle, eye about 8 inches from the muzzle. If small smears, flakes, or lumps are seen on the surface of the bore near the muzzle, or for about 6 inches down from the muzzle, looking like dull lead, this is metal fouling. Metal fouling should be removed at once as it not only is detrimental to accuracy of firing, but the bore will rust very quickly where covered by this fouling. To remove metal fouling, proceed as follows:

The rifle should be clean, the barrel cold, and the bore free from primer and powder fouling and oil. Place a cork in the chamber to seal the bore, plug the gas port tightly with a wood plug, and stand the rifle muzzle up. Carefully pour the standard metal fouling solution into the bore from the muzzle until the solution rises in the flash hider above the bore. Take care not to spill any solution on the exterior of the rifle or on the stock. If any is spilled wipe it off at once. Place a few drops of oil on top of the solution to prevent the ammonia from evaporating and rusting the flash hider. The solution should then be permitted to remain in the bore from 15 to 20 minutes, never longer than half an hour under any circumstances. *The solution should never be used in a hot barrel.* Then pour solution out of bore, remove cork from chamber while holding muzzle depressed (to prevent leakage of ammonia into receiver), remove plug from gas port, swab out ammonia remaining, swab with water to remove all traces of ammonia from bore, then dry bore thoroughly and oil as prescribed for regular cleaning. The ammonia solution dissolves the metal fouling. Where tracer ammunition has been used it may be necessary to apply the solution three or four times to remove the large amount of mental fouling deposited.

Metal fouling solution should be kept in a strong bottle tightly corked with a rubber cork, and in a cool place, and the bottle should be opened only for the time necessary to pour out the amount required, in order to preserve the strength of the solution. The solution, when mixed, should be used within 30 days. A solution should not be used more than twice, and used solution should not be mixed with unused, but bottled separately. Care should be used in mixing and using this solution to prevent injury to the rifle. Fresh solution has no effect on steel if the steel be kept continually wet or immersed for not more than 30 minutes. If the solution be allowed to evaporate from the steel the latter will rust very quickly. An experienced non-commissioned officer should mix the solution and superintend its use.

Chamber. During firing a certain amount of oil and dirt accumulates in the chamber, where the heat forms it into a hard coating akin to carbon on the walls of the chamber. This coating is easily removed with the automatic rifle cleaning brush while the chamber is hot, but is difficult to remove after it hardens upon cooling. If not removed, cartridges stick in the chamber and failure to extract results. Dirty chambers are a common cause of stoppage. The automatic rifle-

man should be trained to use the cleaning brush immediately upon cessation of firing, even if this cessation is only for a few minutes. The cleaning brush is introduced through the ejection opening in the receiver, and should be used vigorously. Upon final completion of firing, the brush having been used, the chamber is further cleaned in the process of cleaning the bore, care being taken that water does not remain in the chamber, and that finally the chamber is wiped perfectly dry with a patch wrapped around the forward prtion of the cleaning brush, and finally lightly oiled in the same manner.

Gas System. The gas system consists of the gas cylinder, gas cylinder tube, piston, and the included gas ports. All of these are subjected to primer and powder fouling to the same extent as the bore, and also receive carbon deposits from the burning of oil. To clean these parts of powder and primer fouling, wipe and scour them thoroughly with rags or patches, wet with soap and hot water, or with hot water only, with the aid of the gas cylinder tool. Then, using dry rags or patches, thoroughly dry the parts. Scrape off any remaining carbon deposits with the gas cylinder tool, and wipe clean and dry again. Then oil the parts with a thin film of sperm oil applied with a clean rag or patch. Do not use an oil can or lubricate execessively. This is sufficient lubrication for these parts. Excess of oil produces excess of carbon and dirt, which cause friction.

Breech Mechanism. This refers to the receiver and all parts contained therein. These parts should be wiped with oily rags, and then with a clean, dry rag until thoroughly clean and dry. They should then be wiped with a clean rag slightly moistened with sperm oil, so as to cover each part with a thin film of light oil. This is sufficient for perfect lubrication. Excessive oiling, as with an oil can, is a waste of oil, and results in a collection of dirt, which causes friction.

Magazines. Magazines should be stripped, wiped clean and dry, and thinly coated with oil, as described for the breech mechanism. Much dirt finds its way into them through careless handling on the ground during range of other firing. They must be kept free from dirt and rust, which hinder their operation by making the spring and follower stick. Care must be exercised in the handling of magazines to avoid denting or bending them.

Exterior and Stock. Clean, dry and lightly oil all external metal parts. Wipe all dirt out of screw heads and crevices with small brush or match stick. If the rifle is to be placed in the arms rack after cleaning the soldier should avoid touching the oiled metal parts with the hand, as perspiration is a great producer of rust. Ordinarily the stock and forearm need only be wiped dry and then wiped with an oily rag. About once a month or oftener, and always after the stock and forearm have become wet with water or prespiration, they should be thoroughly rubbed with a little linseed oil in the palm of the hand. Rub the oil well in until dry. An old tooth brush may be used on the checkered portion of the forearm.

Before firing, all oil should be removed from the exterior of the barrel in order to prevent smoking when the barrel becomes hot.

Protection of Gun Against Chemical Warfare Gases.

When riflle cannot be dismounted:

Wipe over with a well-oiled rag all surfaces exposed to the gas except the bore.

Fire occasional shots, and between these work operating handle back and forth.

Wipe magazines and spare parts with oily rag and replace in belt.

When rifle can be dismounted:

Proceed as above, except that the bore is plugged at each end with an oily rag and the rifle stripped, wiped with oil, assembled, and wrapped in a waterproof sheet if possible.

After the attack:

Clean all parts in boiling water with a little sal soda.
Clean bore thoroughly.
Wipe all trace of gas from contents of spare parts case.
If time permits, soak belt equipment for two hours in solution containing one part soda, three parts soft soap and ten parts water. Then scrub the belt and hang it out to dry.

Rules to be Observed Before, During and After Firing.

When the automatic rifle is to be fired, it must be clean, properly assembled, and lubricated.

While in use, it must be kept lubricated and free from dirt that would cause friction or clogging.

After firing, the fouling must be cleaned from all parts with which the powder and primer gases have come in contact, to prevent rust. All dirt that will clog up the rifle or cause friction must be removed; the metal parts must be wiped cleaned and dry; and finally, the metal parts must be protected by oil.

In order that these conditions may be fulfilled, automatic riflemen are instructed in certain rules to be observed before, during, and after firing, and are impressed with the fact that defects must be promptly corrected.

Rules to be Observed Before Firing. Observance of these rules helps greatly to insure a perfectly functioning rifle.

(1) Test trigger mechanism at (S), (A), and (F).
(2) See that bore is clear and clean.
(3) Work slide back and forth rapidly several times to see that it moves freely and does not stick.
(4) Test ejector and extractor with dummy or empty case.
(5) Verify proper setting of gas port.
(6) Verify oiling.
(7) Verify cleaning.
(8) Examine magazines and eliminate faulty ones.
(9) See that kit contains full oil can and full complement of accessories and spare parts.

Rules to be Observed During Firing. Observance of these rules greatly diminishes the possibility of stoppages:

(1) Keep magazine and chamber protected from dirt.
(2) Do not allow rifle to become dry (not lubricated).
(3) Clean bore and gas system frequently.
(4) Scrub out the chamber frequently with the chamber brush.

Rules to be Observed After Firing. Observance of these rules means that the rifle will be in the best possible condition for immediate use the next time it is needed:

(1) Remove loaded magazine.
(2) Scrub out the chamber with the chamber brush.
(3) Let bolt forward.
(4) Wipe out bore and oil rifle.
(5) Clean rifle thoroughly at first opportunity.
(6) Replenish accessories and spare parts.
(7) Reload magazines as soon as possible.

The trigger is tested by setting the change lever at "F" and pulling the trigger, the gun not being cocked, then similarly at "A" and "S." With the "F" setting a click should be heard each time the trigger is pulled. On "A" it should be possible to pull the trigger all the way back, but there will be no click. When set at "S," it should be found impossible to pull the trigger.

The bore is examined either by looking through it, or by running through a patch on a cleaning rod.

Working the slide back and forth by means of the operating handle will indicate to the senses of touch and hearing how freely the mechanism works, and whether it is clean and lubricated.

The ejection and extraction are tested by putting a dummy cartridge or an empty cartridge case in the chamber, letting the bolt forward on it, and then pulling back the operating handle to see if it extracts and ejects properly.

The second and third rules to be observed during firing must not interrupt actual firing. They can be attended to during lulls in the firing, or when firing ceases or is suspended for short periods.

The fourth rule during firing is very important. The chamber brush should be used to scrub out the chamber promptly when firing stops, even if it is expected to resume firing in ten minutes.

The rules to be observed before firing require only two or three minutes, and should be carried out before starting out on any day when firing may take place.

Detailed Inspections.

A detailed inspection of the automatic rifle at frequent intervals, combined with prompt correction of the faults revealed by inspection, is necessary to insure its proper functioning. This inspection is made daily by the automatic rifleman, and at regular intervals by platoon and company commanders.

Detailed inspections are made for the purpose of discovering defects, so that they may be corrected. These defects include: Defective parts (burred, worn, lost or otherwise defective); improper cleaning (dirt, rust); incorrect assembly.

The correction of the defects will involve, among other points, repairs and replacements.

General Precautions. The flash hider and front sight should be tight.

The barrel should be absolutely tight in the receiver. The index mark on the lower end of the barrel where it screws into the receiver must register with the corresponding index mark on the bottom of the receiver.

The tightness of the buffer tube and stock can be readily tested by pulling strongly to the rear on the stock to see if it moves.

The piston should be carefully inspected for fouling at and near the piston head. This is a part that rusts easily and quickly if not given proper attention.

The length of the recoil spring is easily tested by measuring it along the barrel between the gas port and the forward end of the receiver. Remember that the barrel is 24 inches long, and that the gas port is 6 inches from the muzzle. That leaves approximately 18 inches between the front of the receiver and the gas port. Placing the recoil spring against this 18 inch part of the barrel easily enables the eye to judge whether the spring is less than 15 inches long.

The extractor should fit snugly into the bolt and have no side play (twisting). Test it particularly by placing a cartridge on the face of the bolt gripped by the extractor, and then shake the bolt. It should be able to withstand considerable shaking without dropping out of place.

The bolt and bolt lock are an assembled unit and should never be separated. The bolt lock pin may become loose with wear. Test by trying to push the pin each way with the finger.

See that the point of the firing pin protrudes through the face of the bolt, and that the firing pin hole in the face of the bolt is not enlarged.

To test the length and strength of the sear spring, set the change lever for automatic action, hold the trigger guard upside down, and pull the trigger. The sear spring should push the connector and sear back into place when the trigger is released.

The top of the magazine catch engages in the magazine catch notch of the magazine when the magazine is placed in the rifle, and holds it up. If either the catch or the notch is worn, the magazine will slip down out of place.

Examination on Mechanical Training. Mechanical training is concluded by a detailed and practical examination of the student in the functioning, operation and care of the rifle to demonstrate his ability to maintain the continued successful operation of the machine rifle in the field.

CHAPTER VI.

MACHINE RIFLE MARKSMANSHIP.

PREPARATORY RANGE TRAINING.

Preparatory range training provides instruction and drill, prior to firing with live ammunition, in the correct methods of shooting the machine-rifle. Combined with previous experience in handling the service rifle, and with the mechanical instruction covered in the preceding chapters, it enables the student to go to the range well prepared.

This training must precede any target practice whether on the 1000-inch range or on longer ranges. It is carried on by the coach and pupil method in the same manner as are the preliminary exercises in rifle marksmanship training. Exactness in detail in all parts of this training must be the object of each man. When carrying out any phase of the training he must have a coach beside him to watch for and correct errors.

Those who have had thorough training in rifle marksmanship will require only a comparatively brief period of preparatory range training with the machine-rifle, sufficient to enable them to become familiar with the particulars in which the correct methods of shooting the machine-rifle differ from the methods proper for the service rifle.

Steps in Preparatory Range Training.

The steps in this training are the same as in rifle marksmanship and include: Sighting and aiming, positions, trigger squeeze, rapid fire drills, effect of wind and sight changes, the score book, and an examination.

Sighting and Aiming. The rear sight on the machine-rifle consists of a large aperture in a small disk. It is graduated for elevation in even hundreds of yards to 1500 yards. The sight is set by placing the index line on the rear sight slide opposite the index mark indicating the desired range. The wind-gauge has six points of windage on each side of the zero. The wind-gauge rule is applied in the same manner as taught in rifle marksmanship.

The alignment in sighting is as prescribed for the rifle. Because of the large aperture a little difficulty may at first be encountered in centering the top of the front sight. As the eye becomes accustomed to the large sight it will be found that the front sight centers itself automatically. The soldier must look through the aperture and not at it and the eye must be focused on the target and not on the front sight. The aperture and disc will then appear somewhat blurred. The top of the front sight is aligned in the middle of the blur. Gradually the centering of the front sight in the aperture becomes automatic and ability to take quick aim is acquired. The large rear sight is necessary in order readily to pick up the target, and keep it in view when firing rapidly. It is essential that the eye be close to the rear sight, certainly never farther from it than three-quarters of an inch. This is necessary for consistent aiming.

The second and third sighting exercises prescribed for the rifle (see Rifle Marksmanship), are carried out with the machine-rifle. Triangles made at 50 feet with a small bull's-eye should be no larger than those expected in similar work with the service rifle. Failures to attain this result are usually due to sighting with the eye too far away from the rear sight.

The front sight must be blackened for these exercises, and for all others that include sighting and aiming, also, of course, for range practice. It is not necessary to blacken the rear sight.

Positions. The prone position is the normal one for firing the machine-rifle. For anti-aircraft use, however, the rifle may be fired from the shoulder provided there is at hand some convenient object upon which to support the rifle. In aiming, the firer places his eye as close to the rear sight as possible without assuming a strained position. The body of the firer is placed directly behind the rifle, and not at an angle. The bipod and stock rest are readily adjusted to the firer; the legs of the bipod mount being adjusted preferably by an assistant, the elevating screw of the stock rest by the firer. The butt of the rifle should be fixed

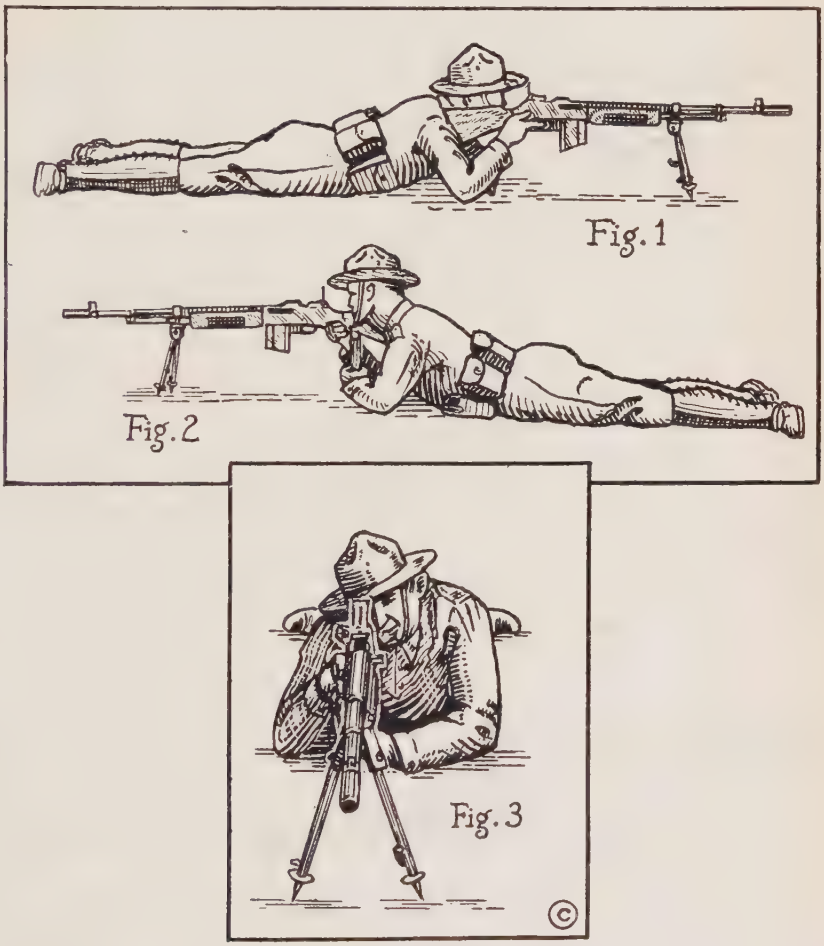

Fig. 1. Right side view. Fig. 2. Left side view. Fig. 3. Front view.

PLATE 40. Normal Firing Position, Machine Rifle.

firmly into the hollow of the shoulder by means of the right hand at the grip. There should be no effort to push the piece forward over its two mounts. The firer, while holding the butt firmly into the shoulder, should be conscious of a "pulling" sensation, as though he were dragging the piece to the rear. Since constant adjustment of the elevating screw is necessary in order to engage a target effectively, the left hand should grasp the elevating screw, hold the shoe of the stock rest firmly to the ground, and elevate or depress the piece as occasion requires.

Trigger Squeeze. The proper method of squeezing the trigger is the same as taught for the service rifle up to and including the instant the gun fires. At

this point the firer with the service rifle releases the trigger and lets it fall back into position for the next shot. With the machine-rifle, however, the squeeze must be continued on past the point at which the gun fires, so that the connector may be cammed forward from under the sear, and the sear spring depress the front end of the sear and rise the sear nose instantly into position to engage the sear notch in the slide. This avoids the firing of two shots with one squeeze of

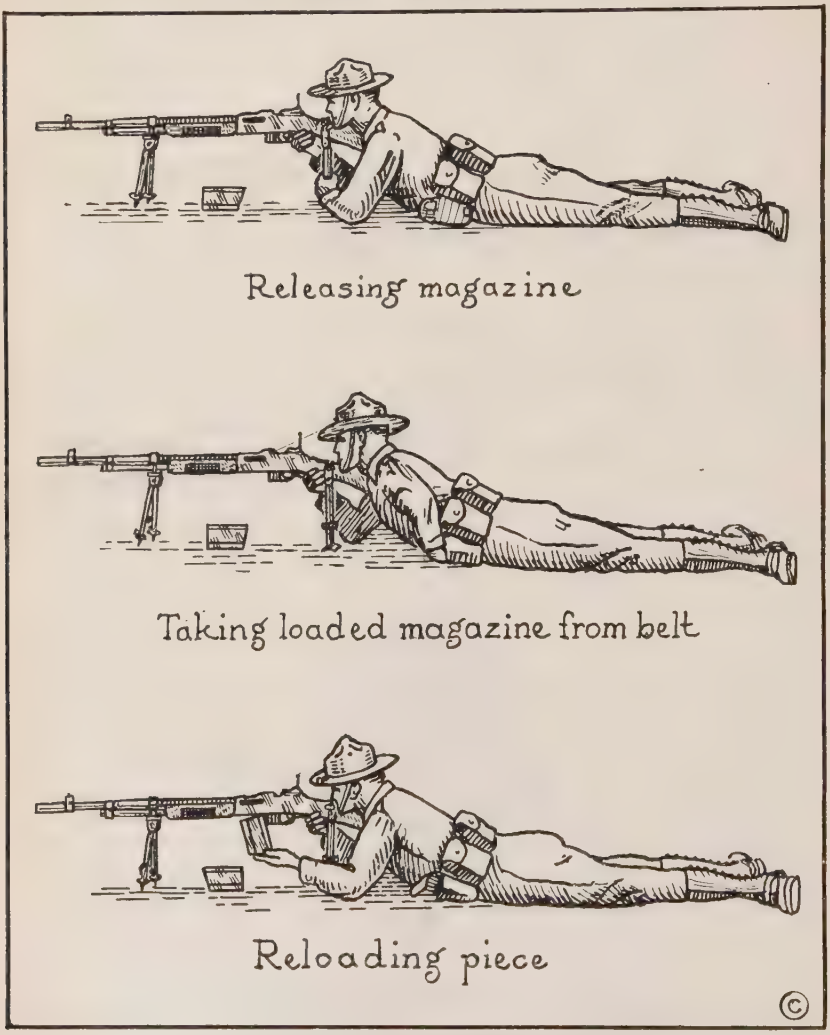

PLATE 41. Operating the Machine Rifle.

the trigger when the rifle is set for semi-automatic fire. Thereafter, of course, the trigger is released and allowed to go back into position for the next shot.

Rapid Fire. Rapid fire exercises are conducted for the purpose of teaching the machine rifleman dexterity in the manipulation of his weapon. They are held at short ranges with A or B targets (Auto rifle) as aiming points. During actual firing, when the last shot in the magazine has been fired (the bolt now being in the rearward position and the rifle held horizontally), the firer, by pushing the magazine release with the right forefinger, causes the magazine to fall out of its own weight. Full magazines are so placed in the belt that when grasped and carried forward by the right hand the long portion of the magazine will be to the rear. Empty magazines are replaced in the belt.

Effect of Wind; Sight Changes. The effect of wind and changes in sight are the same as discussed in the course in Rifle Marksmanship, to which the student is referred.

Score Book. The score book is utilized to keep a personal record of the results and conditions of firing as with the service rifle.

Examination. Preparatory range practice is concluded by a practical examination of the student covering the instruction given in the preparatory work.

TARGET PRACTICE.

Purpose of Target Practice. Range firing is intended to give the soldier actual practice in the use of his machine-rifle with live ammunition under conditions which permit the result of each shot to be determined. He puts to use the knowledge previously acquired, gains confidence and the ability to shoot accurately and rapidly, and finally by firing for record establishes his classification as a machine-rifleman.

Preliminary Training Required.

Before a soldier is permitted to fire the automatic rifle on the range, he shall have completed a thorough course in rifle marksmanship, except where he belongs to an organization that does not include service rifles in its equipment. The soldier must also thoroughly understand stripping and assembling, functioning, care and reduction of stoppages; and have completed preparatory range training. The principles taught and the methods practiced during preparatory range training and mechanical training must be applied in range practice with live ammunition.

Flinching and Trigger Squeeze. Lack of recoil practically eliminates flinching with the machine-rifle. Nevertheless, it is important to squeeze the trigger properly.

Holding During Movement of Slide. It is important to hold steadily and aim accurately, not only before the trigger is squeezed, but also during the time that it takes the slide to complete its forward movement. To the beginner, the forward movement of the slide seems to throw the rifle completely off the target, but experience in firing will prove that this is a negligible factor.

Maintaining Prescribed Rate of Fire. During timed or rapid fire it is essential to maintain the prescribed rate of fire. Therefore the trigger must be squeezed properly and magazines changed without loss of time. The first empty magazine of a two-magazine score need not be replaced in the belt until after the targets have been pulled down. However, accuracy must never be sacrificed for speed. It is always better to fire a few well-aimed shots than many unaimed ones.

Blackening Sights. The front sight of the machine rifle should be blackened for all range firing.

Pads. The use of elbow pads is recommended. Shoulder pads are unnecessary.

Coaches and Coaching. The coach and pupil method of instruction used in preparatory range training is adhered to during range practice except when firing for record. Whenever a man is in a firing position, except in record practice, a coach will be placed beside him to watch him and point out his errors. The coach watches the man. A coach who watches the target is of no assistance to the firer.

Kinds of Target Practice.

Target practice with the machine-rifle is divided into:

(1) 1000-inch range practice, which is carried out on specially constructed or improvised 1000-inch ranges.

(2) Known distance practice on the Class "A" rifle range at 200, 300, 500, and 600 yards.

(3) Special firing, which consists of assault fire and anti-aircraft fire.

Order of Firing. The order of firing is shown in the accompanying table. The procedure may be changed by the officer in charge of firing when conditions make such action advisable. Such additional practice may be given as is warranted by the time and ammunition available.

TABLE OF KNOWN DISTANCE FIRING.

Range	*Target*	*Kind of Fire*	*Number of rounds*	*Aiming Point*	*Time Limit (seconds)*
Inches					
1000	A (Auto Rifle)	Slow—S.A.	10		None
1000	A (Auto Rifle)	Automatic—bursts of 3-5	20		None
1000	B (Auto Rifle)	Timed or rapid—S.A.—fixed	5	Single upper paster	8
1000	B (Auto Rifle)	Timed or rapid—S.A.—traversing (left to right)	10	Middle row of 10 separated pasters	15
1000	B (Auto Rifle)	Timed or rapid—S.A.—traversing (right to left)	10	Bottom row solid black line	15
Yards					None
200	A	S.A.	10		40
200	A	S.A.	20x		None
300	A	S.A.	10		45
300	A	S.A.	20x		None
500	B	S.A.	10		55
500	B	S.A.	20x		None
600	B	S.A.	10		

x—Two magazines of 10 rounds each.

Antiaircraft Fire. In addition to the course prescribed in the above table, all members of the machine rifle platoon will be required to fire the following course:

TABLE OF ANTI-AIRCRAFT FIRING.

Range	*Target*	*Position*	*Kind of Fire*	*Number of rounds*	*Time Limit*
Not less than 100 yards.	Towed targets free balloons or improvised targets	Any position, rest permitted	S.A.	80x	None
Not less than 200 yards	Do.	Do.	Automatic	80x	None

x—At least every fifth round to be tracer ammunition, if available.

1000-Inch Range Practice.

The purpose of 1000-inch range firing is to give the soldier, prior to known distance firing, a certain amount of training with a target of such nature that his errors may be readily detected and pointed out to him. Here he has practice in reloading, aiming, holding, squeezing the trigger, assuming correct positions, executing rapid fire, manipulating magazines, and reducing such stoppages as may occur.

Targets for 1000-Inch Firing. Automatic rifle targets, A and B (Plates 42 and 43) are used on the 1000-inch range when available. If not available, the machine gun 1000-inch target or any paper or cardboard target, approximately 3 by 5 feet, ruled in 2-inch squares, can be used.

Kinds of Firings Carried out on 1000-Inch Range. Firing on the 1000-inch range includes:

Slow fire.

Automatic fire.

Timed or rapid fire.

For 1000-inch firing an initial setting of 400 yards on the rear sight will be approximately correct. The exact setting is determined by actual firing.

1000-Inch Slow Fire. This practice consists of firing in the prescribed position. Semi-automatic fire is used and each shot carefully aimed.

1000-Inch Automatic Fire. Bursts of three to five shots at each pull of the trigger are fired in this practice. It is fired for the purpose of convincing the

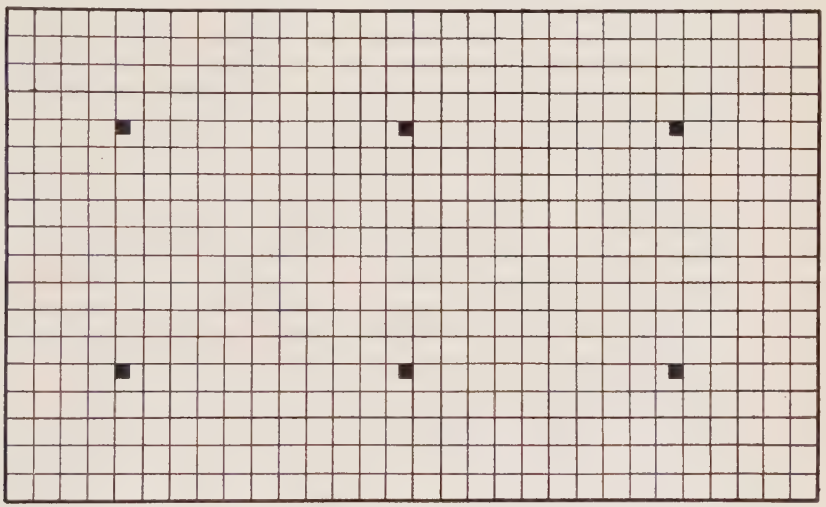

PLATE 42. Automatic Rifle Target A.

soldier that automatic fire is not as efficient as semi-automatic fire. A comparison of his own shot groups, made with automatic and semi-automatic fire, will give him visual proof of the disadvantages of automatic fire.

This 1000-inch automatic firing is the only phase of machine rifle target practice fired with the change lever set at "A." All other phases of target practice are fired with the change lever set at "F" for semi-automatic fire.

1000-Inch Timed or Rapid Fire. This practice comprises concentrated and distributed fire delivered within time limits. It gives the soldier practice in the delivery of timed or rapid fire and also in distribution. A. R. target B is used (Plate 43).

In concentrated fire (5 shots in 8 seconds at the single paster) the shot group should be small enough to be contained in a circle 4 inches in diameter.

In distributed fire (10 shots in 15 seconds at the distributed row of pasters, and 20 shots in 30 seconds at the solid line), the soldier is taught to put one shot in each of the distributed pasters and to place a hit at least every 2 inches along the solid line of pasters. He should understand that every inch on this target, in both elevation and deflection, represents 1 yard at 1000 yards or ½ yard at

500 yards. It is not contemplated, however, that a high degree of proficiency can at this time be attained in distributed fire.

Known Distance Practice.

Known distance practice is divided into two phases, instruction practice and record practice.

Before known distance firing is taken up, the soldier must have completed the course of 1000-inch firing. The principles taught during mechanical training, preparatory range training, and 1000-inch firing, must be observed during known distance practice. If the prior training has been thorough, the score obtained on the known distance ranges will be good. If the training has been poor or insufficient, known distance practice will invariably reveal the deficiencies.

Instruction Practice. Instruction practice on the known distance range gives the soldier an opportunity to apply the principles of machine-rifle marksmanship by firing with live ammunition, at fixed distances, on clearly defined

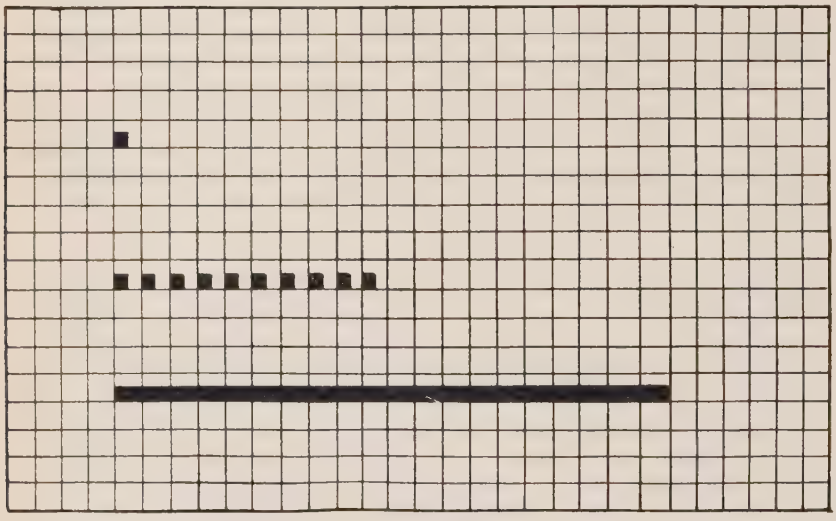

PLATE 43. Automatic Rifle Target B.

targets. The amount of instruction practice is limited by the time and ammunition allowance available. Each person will complete instruction practice before proceeding with record practice.

Record Practice. Following instruction practice, the soldier fires the record practice as a test of his ability as a machine-rifleman, and for qualification. When record practice is once begun, it is carried to completion before any other practice is permitted. Procedure and rules governing record practice are prescribed in order to secure a uniform test throughout the service.

The provisions governing record practice with the rifle apply to machine-rifle record practice with the following changes affecting rapid fire:

(1) The firer is already in the prescribed position at all ranges before the target appears.

(2) The firer reloads with a second magazine taken from the belt.

(3) All references to 10 shots in rapid fire with the rifle will be understood to mean 20 shots when applied to rapid fire with the automatic rifle.

Rules Governing Record Practice. The provisions and rules governing record practice for the rifle apply to automatic rifle record practice with the following changes:

(1) No test of the trigger pull is required before firing.
(2) Cleaning is permitted at any time.
(3) The provisions relative to misfires and disabled rifles during rapid fire do not apply to the automatic rifle. In the event of a stoppage during rapid fire with the automatic rifle the officer in charge investigates the stoppages and authorizes the score to be fired again if the stoppage is due to faulty ammunition or to failure of some part of the gun, not due to fault of the firer.
(4) All references to 10 shots in rapid fire with the rifle will be understood to mean 10 shots when applied to rapid fire with the machine-rifle.

Uniform and Equipment. The machine rifleman's belt will be worn during all range practice. The uniform to be worn is prescribed by the commanding officer.

Safety Precautions. Magazines will not be inserted in machine rifles in rear of the firing line.

All machine-rifles on the range and not in actual use will have the bolt in the forward position and no magazine in the magazine opening.

After firing and before leaving the firing point, all men will be required to remove the magazine and then let the bolt forward.

Records and Reports. The same records and reports are required in connection with machine-rifle target practice as with the service rifle.

In addition a record is required to be kept of each machine-rifle, showing the number of the rifle, date received, number of rounds fired, stoppages, repairs, inspections, and name of the soldier to whom issued.

CHAPTER VII.

COMBAT EMPLOYMENT OF THE MACHINE RIFLE.

Characteristics of the Machine Rifle.

A knowledge of the powers and limitations of the machine-rifle is essential to its correct employment. Its characteristics are briefly given below.

Fire. The machine rifle is a weapon of fire only. Its fire power has already been discussed (see "Mobility and Fire Power," Chapter III). Most effective results will usually be obtained through the use of semi-automatic fire, which gives a deep, narrow cone of fire.

Mobility. This is an outstanding feature of the machine-rifle, being comparable to that of the service rifle and greater than the mobility of the machine gun. (See Chapter III).

Bipod Mount and Stock Rest. The bipod mount reduces considerably the personal factor in aiming and firing, but not to the same extent as the machine-gun tripod mount. The bipod mount, makes possible the employment of accurate fire up to 600 yards and fairly accurate fire up to 1000 yards, provided a judicious choice between semi-automatic and automatic fire is made. Beyond 1000 yards the machine-rifle is very inaccurate. The bipod mount is not sufficiently stable to permit of indirect fire, as ordinarily understood, although advantage may be taken of auxiliary aiming marks for fire on large targets. Fire over the heads of friendly troops should never be attempted with machine-rifles.

The stock rest is of value from the standpoint of accuracy. It is habitually used on regular ground, and can generally be used on irregular ground. In cases where the target is considerably below or considerably above the level of the firer it may become necessary, or desirable, to keep the stock rest in the folded position, laying the piece without it.

Ease of Control. The machine-rifle is operated by one man, hence its considerable fire power can be quickly applied in almost any direction on any target and can be instantly stopped.

Rapid Change of Front. The machine rifle may be fired through a comparatively wide arc without changing the position on the ground of the feet of the bipod mount and with little or no exposure on the part of the personnel. The machine-rifle can not be fired in all directions without changing the position of the mount, as can the machine gun with its all-round traverse, but being considerably lighter than the machine gun, it can change the direction of its fire very rapidly with little inconvenience to the crew and without seriously increasing vulnerability.

This characteristic makes for flexibility of fire, so important to cavalry. A sudden attack from a flank can be dealt with at once. The fire can be quickly thrown on a target with a view to accurate and rapid ranging. Moving targets, such as hostile cavalry or other troops in motion, can be followed.

Moral Effect. The rapid production and application of machine-rifle fire from unsuspected positions at opportune moments produce a demoralizing and disheartening effect on the enemy. The presence of a large number of machine-rifles on our side and confidence in the decisive effect they are capable of producing tend to raise the morale of our troops and to lower that of the adversary. Machine-riflemen must be imbued with the belief that their support is decisive.

Visibility. The small space occupied by a machine rifle and the personnel to serve it enables a relatively large volume of fire to be opened with surprise effect

from a position in which only one or two riflemen could use their rifles effectively. It is more invisible than a machine gun and difficult to distinguish from a rifle. The machine-rifle is therefore a difficult target to locate and destroy, as it can utilize the slightest cover (from view, as well as from fire), provided the personnel is well trained in the use of cover. Flash, oil vapor or muzzle blast may disclose the position of a machine rifle operated by a poorly trained trooper.

Noise of Firing. Machine-rifles may be located by the enemy through their distinctive sound of firing which when using automatic fire, is unmistakable.

Vulnerability. Vulnerability depends largely on visibility. Machine-rifles are very vulnerable when in pack. Their place in column should be screened by less vulnerable units but in order to bring their fire power quickly into action they should be well forward in column. All members of the gun crew should be taught to operate the rifle so that casualties will not materially reduce its fire power.

Accidental Cessation of Fire. The machine-rifle is a delicate piece of mechanism which may be put out of action by ignorance on the part of operating personnel or by the breakage of a part. A high degree of training will result in few failures of the rifle to fire.

Technique of Machine-Rifle Fire.

Range estimation, target designation, and other phases of musketry training are included in the subject of Musketry, to which the student is referred. All members of the machine-rifle platoon must read and maintain a high standard of training in musketry.

Employment of Machine-Rifles. In a dismounted attack, each machine-rifle squad (2 machine-rifle crews) is habitually assigned to a rifle platoon, each machine-rifle crew being assigned to a rifle squad (normally the two flank squads); and its machine-rifle becomes one of the weapons of that squad. When used to support a mounted attack, and when employed in defense, machine-rifles may be used in pairs or larger groups—viz., by squad, two squads, three squads, or by platoon.

Classes of Fire. Fire may classed as—

Fixed fire, which is fire directed at a single aiming point. The beaten zone is not artifically increased either in width or depth. It is employed on targets which will be included in the sheaf, to cover a limited area or to secure observation of fire.

Traversing fire, which is fire directed at a number of points in the direction of width. It is obtained by successive changes of direction. It is used to engage wide targets.

Searching fire, which is fire directed at a number of points in the direction of depth. It is obtained by successive changes of elevation. It is employed on deep targets or areas.

Swinging traverse, which is continuous traversing fire. It is used at close range to repel an assault or to prepare one.

Combined sights, which is the fire of two or more rifles with differences of elevation and a single aiming point. It is used to engage deep targets or to insure hitting a target whose exact range is unknown. It permits the surprise effect which might be lost by ranging.

Direct fire is the only type of fire suitable for the machine-rifle.

Fire Distribution. The following methods of fire distribution are usually applicable, and form the basis of instruction:

(1) When a target is 50 mils or less in width, a squad alone preferably engages it by having each machine rifle lay outside the flanks of the target and traverse across and back, each rifle covering the entire target.

(2) When the target is over 50 mils wide, the machine rifles of a squad alone lay outside the flanks of the target and traverse across to slightly beyond the center, then back.

A target of less than 100 mils in width is engaged by two squads by having the flank machine rifles (No. 1 of the right squad and No. 2 of the left squad) lay outside the flanks of the target, and the interior machine rifles, (No. 2 of the

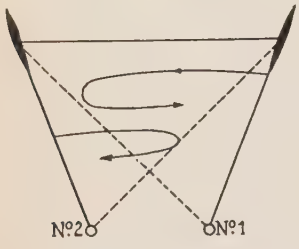

PLATE 44. Fire Distribution, Squad Target of 50 Mils. or Less.

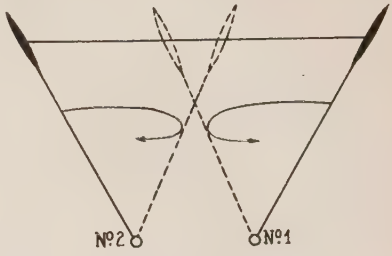

PLATE 45. Fire Distribution, Squad Target of More than 50 Mils.

right squad and No. 1 of the left squad) lay on the center of the target, overlapping their fire. Each machine-rifle traverses inward and slightly into the sector of the adjacent machine rifle.

A target of more than 100 mils in width is engaged by two squads by having the flank machine rifles (No. 1 of the right squad and No. 2 of the left squad) lay outside the flanks of the target. No. 2 of the right squad lays on the center of the right half of the target, and No. 1 of the left squad lays on the center of the left half of the target. Each machine rifle traverses inward and slightly into the sector of the adjacent machine rifle.

Division of Target. When a machine-rifle squad in action is joined by another the squad in action points out the target by suitable means. If the observation of fire is good, a burst on the flanks of the target is an effective method. Unless

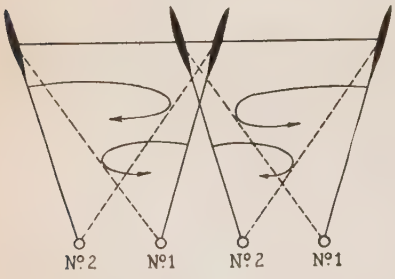

PLATE 46. Fire Distribution, Two-Squad Target of Less than 100 Mils.

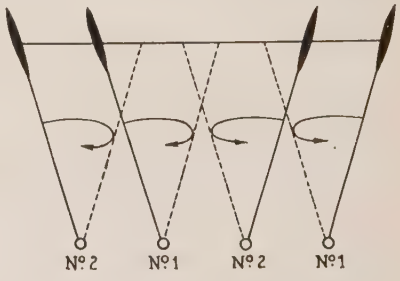

PLATE 47. Fire Distribution, Two-Squad Target of More than 100 Mils.

otherwise ordered, each machine rifle engages the proportional part of the target to its front. Enfilade effect is secured by position rather than by cross of fire.

When a number of machine-rifle squads are massed, the target is divided into squad sectors, and each squad engages the portion of the target assigned it.

Targets. Fire is most effective when developed suddenly and in great volume from unexpected directions.

Favorable machine-rifle targets are deep; shallow, linear targets are unfavorable. Thus frontally, a skirmish line is a poor target; if to the flank it may be a good one. Fire should always be directed against personnel or areas to be denied them. The weapon is ineffective against material.

On small columns, groups of men or animals, areas, bridges, trenches, embrasures, edges of woods, and on moving targets whose direction of march is restricted (such as trucks or artillery) fixed fire is used. On such moving targets the machine rifle is laid on an aiming point in advance of the target, and fire is opened just before the leading element passes the aiming point. It is continuous so long as any portion of the target remains within the cone of fire, the point of aim being moved ahead of the target as often as may be necessary.

Traversing fire is used to engage wide targets, such as lines or trenches (engaged frontally) shallow woods and villages.

Searching fire is employed against deep targets, such as columns, trenches (engaged laterally), deep woods, areas, reserves or troops forming for counterattack, or led animals.

Unremunerative targets, such as scouts, observers, small working parties, and the like should not be engaged when their activities can be suppressed by rifle fire.

Fire Orders. Fire instructions are best issued as fire orders; to the trained soldier the fire orders of his leader convey a picture and compel rapid action as can no amount of descriptive shouting. By careful and thorough training in fire orders the officers and noncommisisoned officers acquire the habit of command and quick decision; the soldier is taught to think in a rapid and methodical manner and made acquainted with many of the situations he will meet in battle.

In the early phases of the training the instructions should be very complete and describe every action of the machine-rifle. Later the instructor issues partial orders and requires members of the crew to complete them.

Endeavor should be made to reduce all orders to three basic items: *Range, Target* and *Commence firing.* In any case orders should be as brief as possible. Proficient crews will come to look upon the order as a signal rather than as instructions, for trained crews seldom require instructions as to the kind of fire, sectors, rates, and the like. In battle the loss of leaders will not immobilize the platoon; subordinate leaders will have the necessary knowledge and confidence. Orders must be accurate, brief, and describe the target as seen with the naked eye. They should be delivered in a sharp, clear tone, calmly, and with an air of assurance and confidence. There must be sufficient intervals between elements to permit the order to be understood and repeated.

The following is an example of a complete fire order in which a reference point is used:

ITEM	ORDER
Range	*Range 700.*
Direction to reference point	*Right.*
Reference point	*Reference point, house.*
Distance and direction to target	*Right, two fingers.*
Target	*Hedge.*
Sectors	*First machine rifle, right; second, left.*
Kind of fire	*Distribute.*
Amount of ammunition	*2 magazines.*
Commence firing	*Commence firing.*

Usually fire orders are much more simple, as for example:

Range 600.	or	*Range 400.*
Column.		*Top window of tower.*
Search.		*Fix.*
Commence firing.		*Commence firing.*

Adjustment of Fire. Observation of target and fire is continuous throughout the action. It is performed by all directly connected with fire delivery. The gunner observes and corrects his own fire whenever possible. He repeats all fire

orders. The platoon leader takes post where he can observe the fire of his squads and communicate with the squad leaders.

When fire for effect is opened, errors in range or direction are corrected without pause while firing. The gunner adjusts his fire on the target. When practicable, the required correction is estimated and checked by observed effect.

Tactical Instruction.

Instruction in the machine-rifle includes mounted instruction, dismounted instruction, and tactical instruction. Mounted instruction includes the packing of the rifle and ammunition on the pack animal, and mounted drill. Dismounted instruction covers the manual of the machine-rifle, mechanism, marksmanship and technique of fire. All of this instruction is designed to render the individual a more effective member of the combat team.

Tactical instruction with the machine-rifle is collective as well as individual.

Squad Exercises on Varied Ground. The movements prescribed for the squad in Cavalry Drill, including going into and out of action, are practiced on the drill ground in order to accustom the personnel to the mechanism of the operations involved in the performance of their various duties and to allow each man to see the work of the squad as a whole. Drill-ground practice is valuable as a disciplinary exercise, but it must be short and no more frequent than is necessary. As soon as possible, the squad is exercised on varied ground, where more time will be spent than on the drill ground. The different formations learned on the drill ground are then fitted to the terrain as it is found.

The following exercises on varied ground are prescribed:

(1) Leading the squad, both mounted and dismounted, around and over the various obstacles to be met in campaign, up and down steep slopes, across small streams, through dense woods, or other varied terrain.

(2) Practicing, both mounted and dismounted, the steady approach to a position, utilizing folds in the ground, creek bottoms, draws, woods and other cover, the squad leader reconnoitering ahead of his squad.

(3) Practicing the advance by bounds, both mounted and dismounted, the squad leader reconnoitering ahead to the next cover and then signaling the squad to advance to that point.

(4) Going into action, including a short reconnaissance by the squad leader and the establishment of the line of supply from the led animals to the firing position of the rifles.

(5) Going out of action, including the withdrawal from the firing position to an assembly point in rear, or the removal to a new firing position in advance to a flank, or in rear.

(6) Simulating casualties, and the consequent interchange of duties between the members of the squad, in all of the above exercises.

(7) Practicing all of the above exercises at night.

After the squad has become fairly proficient in the exercises on varied ground, they are repeated with an observer representing the enemy posted in a position, the general direction of which is known to the squad leader. The squad is then required to practice all the exercises named above, without revealing its position to the enemy. After the squad has become fairly proficient in the exercises with an observer, the latter should be equipped with field glasses and the exercises again repeated.

Platoon Tactical Drills. A distinction is made between the tactical handling of the machine rifle platoon and the tactical functioning of the platoon within itself. In action, the machine-rifle platoon leader receives a mission which he is called upon to accomplish with his machine rifles. He estimates the situation and decides how he can best fulfill that mission. He then translates his decision into orders which his subordinates are to carry out. In instruction, the entire process from the moment the machine-rifle platoon leader receives his mission to

the completion of the task, including the leader's estimate of the situation, his decision and orders, is a tactical exercise. The manner in which these orders are carried out by the platoon as a whole constitutes a tactical drill.

As early as practicable in its training, the platoon is drilled on varied ground. After the mechanics of the drill have been learned on the drill field, but without delaying to attain precision in the movements, tactical drills are begun. Their object is to illustrate the reason for the different movements learned on the drill field, to teach the use of ground and cover, the correct manner of selecting, approaching, and withdrawing from firing positions, the interpretation of orders, and the value of the teamwork between squads and half squads.

The platoon leader must carefully prepare each exercise and go over the ground on which it is to be carried out before taking the platoon on the ground. Drills are carried out on different ground in order to accustom the men to working on all types of terrain. Officers and men who normally require maps, field glasses, notebooks, pencils, etc., should be equipped with these articles for tactical drills. An assumed situation and a simple order are always given in order to make the drills more real and to arouse the interest of the men. Before beginning any particular drill, it is carefully explained to the entire platoon, so that all thoroughly understand just what is to be done.

Each squad may be required first to perform its part of the drill alone, watched and criticized by the other squads, the exercise being afterwards carried out by the platoon as a whole.

Every drill is followed by a brief criticism in which the platoon leader explains carefully the mistakes made and the reasons why they are actually mistakes. If there have been many mistakes, the same drill is repeated on the same ground until satisfactorily performed and understood by all. After the platoon has become fairly proficient in the drill, an observer representing the enemy is stationed in the enemy's position to see if any members of the platoon expose themselves during the exercise. In the latter drills, this observer is equipped with field glasses. The drills are frequently carried out simulating casualties, so that each member of the platoon must perform the duties of some other member.

The following tactical drills are required:

(1) The march close to the enemy.

(2) The advance to, occupation of, and withdrawal from a position.

(3) The distribution of the machine-rifle squads to the rifle platoons for action.

These three drills, if varied and fitted to the terrain and to the different tactical situations in which the cavalry troop may find itself, cover practically the whole tactical problem for machine-rifles. Practicing the march close to the enemy teaches the platoon to protect itself against losses from enemy fire. The combat problem of machine rifles consists in delivering effective fire on the targets assigned with the least possible delay and maintaining this fire as long as desired. This is accomplished in one of two ways, either by using the machine-rifle platoon as a fire unit with the fire of all rifles controlled by the machine-rifle platoon leader, or by attaching the different squads of the machine-rifle platoons to their respective rifle platoons for the support of the latter. Practicing the advance to, occupation of, and withdrawal from a position prepares the platoon for its duties in the first event and practicing the distribution of the machine-rifle squads to the rifle platoons for action prepares it for its duties in the second case. The latter practice is obtained as a result of exercises in the troop and is not considered here.

The March Close to the Enemy. The platoon is conducted to varied ground and told that it has just come under enemy observation or fire of a certain type, usually artillery of a stated caliber. It is then practiced in moving forward across country from the position in which it finds itself to a certain location in front, from which it is expected to go into action. The best formations must be

used to take advantage of the ground in order to obtain the greatest possible concealment and to offer the least chance of loss from enemy fire. The shortest possible route consistent with concealment and protection is taken. Communication must never be lost between squads.

The platoon leader, with his platoon headquarters, reconnoiters to the front or sends a noncommissioned officer forward for this purpose. The advance by bounds is practiced, the platoon leader or a noncommissioned officer reconnoitering forward to the next cover and then signaling the platoon to follow at a fast gait to that point.

The squad leaders use their own initiative in determining the gaits and formations to be used by their squads and the manner of passing around or over obstacles encountered. Leaders of squads other than the base squad are responsible for not losing touch with it.

The platoon is frequently practiced in moving to a flank or to the rear under observation or fire as well as to the front.

The Advance to, Occupation of, and Withdrawal From a Position. The platoon is conducted to varied ground and halted under cover in rear of the position where it is proposed to go into action. After turning the platoon over to a noncommissioned officer, the platoon leader, accompanied by a messenger, rides forward and makes a personal reconnaissance, bearing in mind the mission he assumes to have been given him by his troop commander. After having selected the target or targets and the approximate positions from which the machine-rifles are to fire, the platoon leader sends the messenger back to the platoon with instructions that the platoon or designated squads are to go into action and that a designated amount of ammunition per machine rifle will be required. The platoon leader gives this order to the messenger in the proper form and requires him to repeat it. Upon arriving at the position of the platoon, the messenger delivers his instructions to the noncommissioned officer in charge of the platoon. The latter immediately leads the platoon forward as near to the platoon leader's position as possible, consistent with concealment from the enemy, taking advantage of the cover of the ground to protect the platoon from view as well as from fire. He then halts the platoon and directs the gun crews (less horse holders) to dismount, unpack their machine rifles, with the amount of ammunition ordered, and to accompany the messenger to the position of the platoon leader. Each squad leader designates a horse holder to take charge of his squad. The noncommissioned officer in charge requires the horse holders to separate the animals of the different squads by at least 25 yards, to minimize losses in case the platoon is subjected to artillery fire. In conducting the members of the squads the messenger utilizes all available cover so as not to be detected by the enemy. Upon arrival the squad leaders report to the platoon leader in the proper manner.

The platoon leader then gives a simple but complete order, including not only information of the enemy, but also the location and mission of the troop to which the machine-rifle platoon belongs. It must be impressed upon all machine-riflemen that they exist only for the purpose of assisting the other platoons of their troop in combat.

The following will serve as a type of the platoon leader's order:

"The enemy, about 30 strong, is in position along that road in front [pointing], extending about 100 yards from that lone tree at 2 o'clock [pointing], to the edge of that open field at 11 o'clock [pointing].

"At a yellow rocket signal from the troop commander the troop will envelop the enemy's left by a mounted attack from those woods at 3.30 o'clock [pointing].

"From this position on the hill the machine-rifle platoon will support the troop in its attack. Range, 500, first squad on the right, second in the center, third on the left. Open fire at my command.

"Carriers will be prepared to bring forward extra ammunition as required.
"I will remain here. Any questions? ***POSTS.***"

The platoon leader causes the squad leaders to repeat the order, after which they immediately select the exact positions for the machine rifles, set up their own machine rifles, and cause the No. 2 gunners to set up machine rifles No. 2. Each squad leader in selecting positions must bear in mind that a clear field of fire, with as great a degree of concealment as possible is essential. The squad leaders then verify the sight settings of their own and their No. 2 rifles and insure themselves that the rifles are pointed on the proper portion of the target and that No. 2 gunners understand the method of target distribution to be used. Each carrier returns in the direction of the led animals, takes a position near the led animals between the firing position and the led animals, from which he can see both the platoon leader and the noncommissioned officer in charge of the platoon, and stands ready to bring forward extra ammunition as required.

In withdrawing from action, the procedure is reversed. In this case the platoon leader commands: ***MOUNT,*** and the squad leaders cause the machine rifles and equipment to be carried by hand to the rear and packed on the pack animals. This is particularly important if it is desired to go to an alternative position to open fire. The enemy will then believe that the platoon has been put out of action and will be surprised by fire from the new position. Only in rare cases, such as when the enemy has been routed and the pursuit has started, should the led animals be allowed to dash forward to the firing positions to pack equipment and allow the squads to mount.

The platoon should also be practiced in variations of the above drill in order to attain speed in opening fire and to cover those situations in which any delay in opening fire would be fatal.

At the conclusion of the drill the platoon leader assembles the platoon and goes over the entire exercise, discussing briefly the following:

The noncommissioned officer in charge of the platoon:

Forward displacement of the platoon; route of approach; cover; formations used.

Transmission of instructions to squad leaders.

Final position of led animals; separation of squads.

The messenger:

Manner of delivering messages.

Manner of conducting squads to the platoon leaders; cover.

The squad leaders:

Approach and report to platoon leader.

Interpretation of platoon leader's order.

Selection of exact positions for machine rifles; field of fire, concealment.

Handling of No. 1 machine rifles.

Supervision of handling of No. 2 machine rifles of No. 2 gunners.

No. 2 gunners:

Handling of No. 2 machine rifles.

Carriers:

Positions taken in rear.

Resupply of ammunition.

Horse holders:

Quiet handling of led animals.

Further instruction in combat employment will be found in the course in Tactical Employment of Small Cavalry units.

SCOUTING AND PATROLLING

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SCOUTING AND PATROLLING

CHAPTER I.

Introduction.

War, viewed from afar, is but a succession of strategic moves culminating in one or more tactical encounters. Each move is directed so as to gain an advantage of position, time or numbers over the opponent, in order that a tactical decision may be won upon the battlefield. This advantage of position, time or numbers gained at the expense of an opponent is termed "tactical surprise." While tactical surprise, in some instances in the past has been gained through chance, in the majority of cases it has resulted from complete and accurate *knowledge of the enemy* in the hands of one commander, as contrasted with the incomplete and inaccurate information at the disposal of the other.

From the outset of a campaign, therefore, until its close, the demand for information is unceasing. Each commander, while seeking to shroud his own dispositions and movements in mystery, insistently calls for news of the enemy who has undoubtedly surrounded himself with a similar mysterious pall. The "fog of war" settles thickly over the opposing forces; a fog which each attempts to pierce in the never ceasing struggle for information.

Cavalry, operating far in advance of other ground forces, breaks through the enemy's defensive screen, and drawing close to his larger masses sends back definite and detailed information of his strength, composition, dispositions, and movements.

Success in this most important of cavalry missions is largely dependent upon the training of the individual troopers in Scouting and Patrolling. For, while large bodies of mounted men may possess the power to push close to the enemy main forces, it is mainly upon the ability of the small patrol, or of the individual scout that the commander relies for his detailed information.

THE SCOUT.

Definition of a Scout. A scout is a trooper trained in the use of ground and cover; in mounted and dismounted movement from cover to cover; in marksmanship; in observation, and in accurately reporting the result of his observation.

Qualifications of Scouts. Effective scouting demands a skilled horseman possessed of courage and resourcefulness; of strength, endurance and agility; of keen eyesight and acute hearing. Most of these attributes, it will be noticed, are natural gifts; but they must be developed and refined by specialized training. The scout, in addition, must be a trained trooper, qualified to care for his mount and for himself under all circumstances. He should be above the average in intelligence, and be able to read understandingly and to write legibly.

The cavalry scout must not only be proficient in mounted scouting and able to move rapidly, undiscovered, over long distances, but he must also be skilled in dismounted scouting. For it will often happen that the mounted scout will have to quit his horse temporarily, and proceed dismounted on his mission.

Duties of Scouts. An appreciation of the importance of scouts is best gained by a consideration of the great variety of duties they are called upon to perform in campaign and in battle. Some of these are given below:

When a command is stationary in camp, scouts and patrols are utilized to provide for its security. They are sent to the front and flanks to gain contact with the enemy and to gather information of many kinds.

On the march, scouts and patrols perform most important duties in the

point of the advance (rear) guard, as flank patrols, and as patrols sent well out in advance of the main body.

In the approach march and entry into the attack they precede and cover the advance of the platoon or troop; maintain the direction of advance; investigate dangerous areas; select cover, and in the case of a mounted attack, reconnoiter for and indicate routes which have good footing.

During the progress of the dismounted attack they precede and cover the platoon, maintain direction and guard the troops against surprise by hostile fire or counter-attack; they select and occupy firing positions; identify and designate targets. They lead the platoon in the advance by infiltration.

In defensive action, they serve as lookouts, observers and snipers.

During the enemy's advance they attempt to break up the attack by picking off the leaders.

Training of Scouts. The training of scouts may be conveniently divided into the following periods of progressive instruction:

Individual conduct by day.

Individual conduct by night.

Observation.

Messages and reports.

Scouting and patrolling are closely related, and accordingly, the individual training of the scout is followed by the combined training of the patrol.

In this course we shall consider only the operations of reconnaissance scouts and patrols, that is, those individuals or units which are sent out to secure information. The duties of scouts and patrols in combat, on the march (in advance and rear-guards), and on outpost are but the application of the principles enunciated below, and their extension.

Applicatory system of training. The individual training of scouts and the combined training of patrols are best taught and best mastered by what is known as the applicatory system. This system consists of four phases:

Explanation: A description of the subject to be taught and explanation of its usage.

Demonstration: A visible enactment of the subject that has been explained.

Application: Imitation and practice of that which has been demonstrated (includes correction of errors and mistakes).

Examination: A final practical test to determine the degree of proficiency attained.

Equipment of Scouts. Scouts have the same equipment as other riflemen. In addition they are provided with field glasses, tracer ammunition and compass. For night work additional equipment may be carried. Ordinarily the scout's equipment is limited to those absolute necessities consistent with the greatest mobility.

The Scout's Horse. The scout should have a well-trained troop horse, one that is sure-footed, able to swim, and willing to take to the water. He must be taught to negotiate steep slopes, follow narrow trails, and take ordinary obstacles. He should stand quietly when tied alone or coupled in pairs, and while being mounted. He should be willing to travel anywhere at any time without the company of other horses; to this end the scout should be frequently sent out with him over varied country for long distances alone.

INDIVIDUAL CONDUCT BY DAY.

Concealment.

The art of concealment is the first step, and, incidentally, one of the most important steps to be mastered in scouting. The scout must be able to see without being seen, especially when in close proximity to the enemy. Successful scouting by day is accomplished by applying a few simple governing principles as given in the next paragraph.

Principles of Concealment. *When observing, remain motionless.* Immobility behind cover, or in the open (when dismounted) is the surest means of concealment. A mounted scout caught in the open has little chance of concealing himself. In such a situation he should move rapidly to the nearest cover and either continue his mission dismounted or else take a different route, mounted.

Expose as little of the body as possible: A scout exposes himself to view as little as possible, both in position and when moving. He takes full advantage of every natural or artificial feature of the terrain which affords concealment.

Whenever possible observe dismounted: A man dismounted, with his horse concealed, is of course far less conspicuous than when mounted. When observing dismounted the prone position should be taken habitually.

Take full advantage of all cover: The scout must be expert in the use of every class of cover. Every precaution must be taken to screen himself from view, both while stationary and while moving. The scout should conduct himself at all times as if he were being watched.

Keep off the skyline: Avoid skylines even at night. A scout who permits himself to be silhouetted against the sky is liable to be discovered, especially if there is a trained enemy on the lookout, which should always be assumed.

Precautions as to Concealment. The following detailed precautions to insure concealment should be observed by the scout:

When in concealment dismounted all parts of the body should be kept as close to the ground as possible. When observing from behind such objects as trees, bushes, rocks, etc., the scout should look around the side of the object, with the body in the prone position, side of the face on the ground. (Plate 1). When the side of the face is placed on the ground, the jaw, ear, and hair offer a broken outline which blends with the broken outline of the terrain better than the rounded top of the head, or head-dress. Before placing the head in the dismounted observing position the hat or helmet should be removed, thus allowing the side of the face to lie flat on the ground, and giving a smaller object to conceal.

If it becomes necessary to look over an object the scout should avoid straight lines. That is, he should not look over the top of a smooth log, rock or embankment. (Plate 2).

The scout should be careful to have no shining bits of equipment on himself or his horse. For example, a uniform that has bleached white, a highly polished saddle, or equipment that glistens in the sunlight. He should also bear in mind that the skin is white and oily, and will reflect light, thus preventing the scout from blending in the background. To overcome this the scout should rub dust or mud on his face and hands when taking up a position in observation in close proximity to the enemy.

Objects are often betrayed by their shadows, especially in a uniform terrain exhibiting no natural shadows. Therefore, the scout should endeavor both when in position and especially when moving, to keep in the shade; that is to blend his shadow and that of his horse with the shadows of the terrain. In looking around a bush, stump or boulder, choose the shady side. Shadows are of course less conspicuous near noon than in the early morning or late afternoon. Shade also reduces contrast. A small bush in the shade of a larger may be a less conspicuous place than the larger bush. Single bushes or small clumps, or other objects standing alone, which afford concealment but no protection from fire, should generally be avoided. If the scout is seen to drop behind one of them, it affords an excellent aiming point for the enemy.

In crossing plowed land move in a furrow, or at the edge of the field, not across furrows. A fold in the grounud a foot deep will afford good cover for a man in a prone position. A prone man with his face down and his hands hidden can not be detected from an airplane at a height of 1200 feet or more, even if

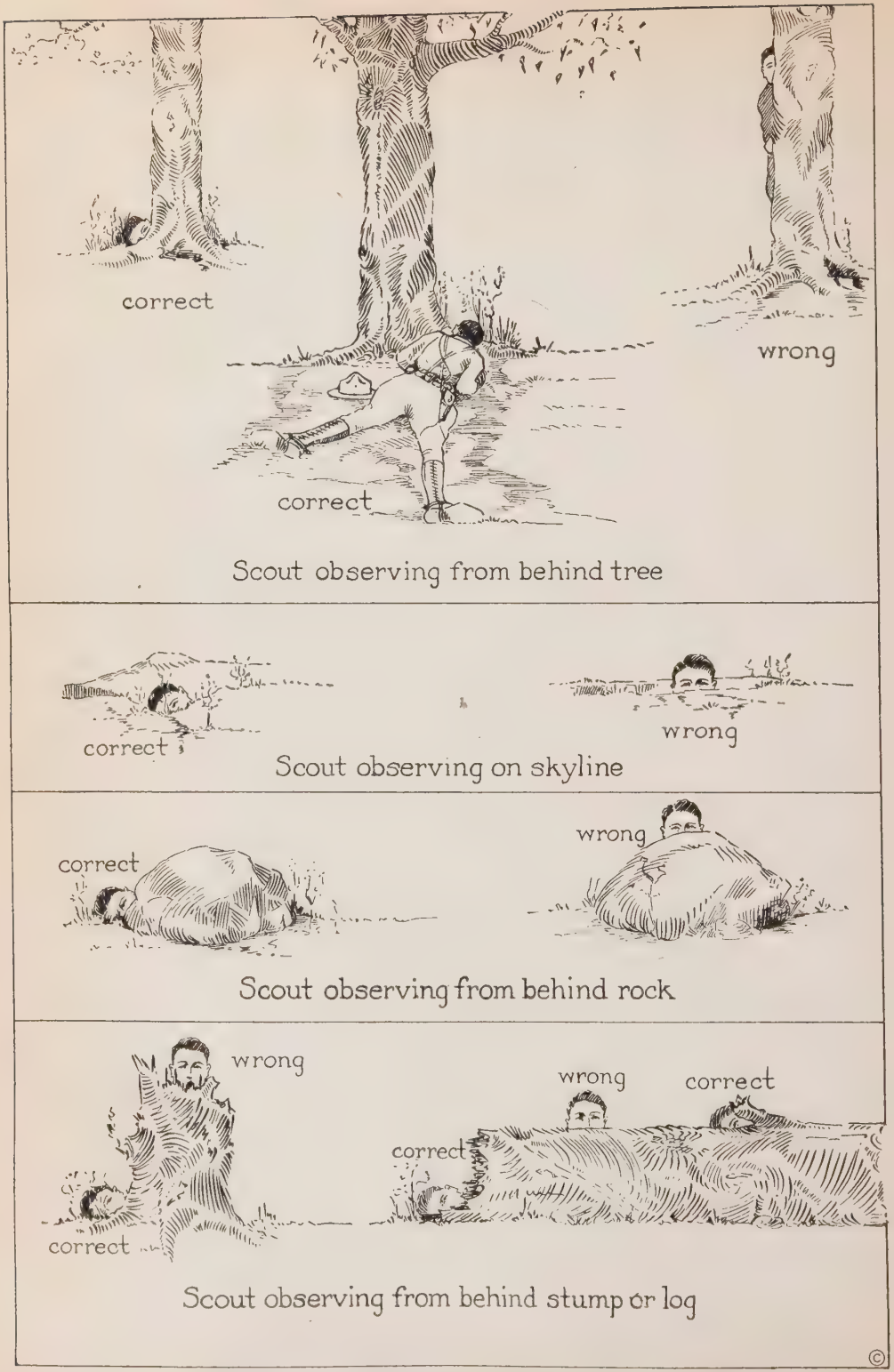


PLATE 1. The Dismounted Scout in Observation Showing Correct and Incorrect Methods of Using Cover during Observations (1).

correct

wrong

Scout observing from behind bush

correct

wrong

Scout observing from fence corner

correct

wrong

Scout observing from skyline

correct

wrong

Scout observing from prone position in open

©

PLATE 2. The Dismounted Scout in Observation Showing Correct and Incorrect Methods of Using Cover during Observation (2).

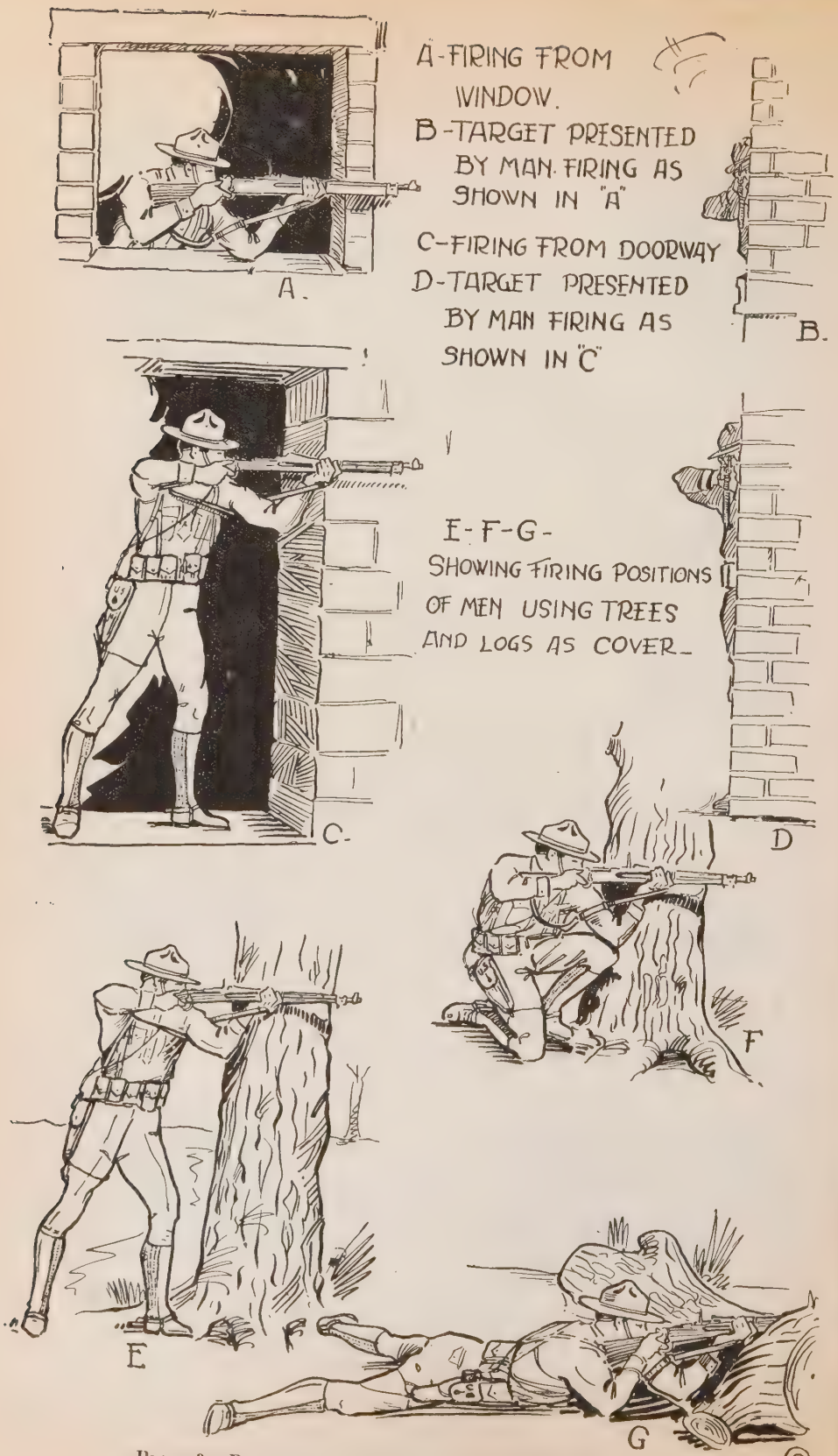


PLATE 3. Positions for Fi

the light is good. A man moving can frequently be detected from an airplane at heights up to 2000 feet; mounted men at even greater heights. A man either stationary or moving in a deep shadow or in brush or tall weeds can seldom be detected from an airplane.

The scout should be careful not to alarm birds or animals whose actions might betray his presence.

When it becomes necessary for the scout to fire from cover or a concealed position he shoud always fire around the right side of the object, thus exposing only a small portion of his body to view or fire (Plate 3).

In observing from a house, he should keep well back from the openings. (Plate 16).

Individual Movement by Day. Dismounted.

Dismounted Movement. As it will ofttimes be impossible to make observations mounted, individual movement on foot near the enemy constitutes an important

PLATE 4. The Dismounted Scout Moving Forward Rapidly from Prone Position.

part of the scout's training. In such cases the horse should be left well concealed, and the scout should advance on foot.

The dismounted scout must be equally adept in moving under cover, and in

the open. He always seeks cover, and bounds across open spaces from one covered position to another. Bounds of this nature, preferably should be short —from 15 to 30 yards.

The scout remains motionless when not actually changing position. He utilizes stops under cover to pick out a covered route of advance, and a location for his next halt. Abrupt movements in preparing to change position are avoided. When necessary to raise the head, it is done slowly, and with extreme caution.

The Prone Position. The trained scout makes his every movement count. The position he adopts during halts is acquired by training and practice; his

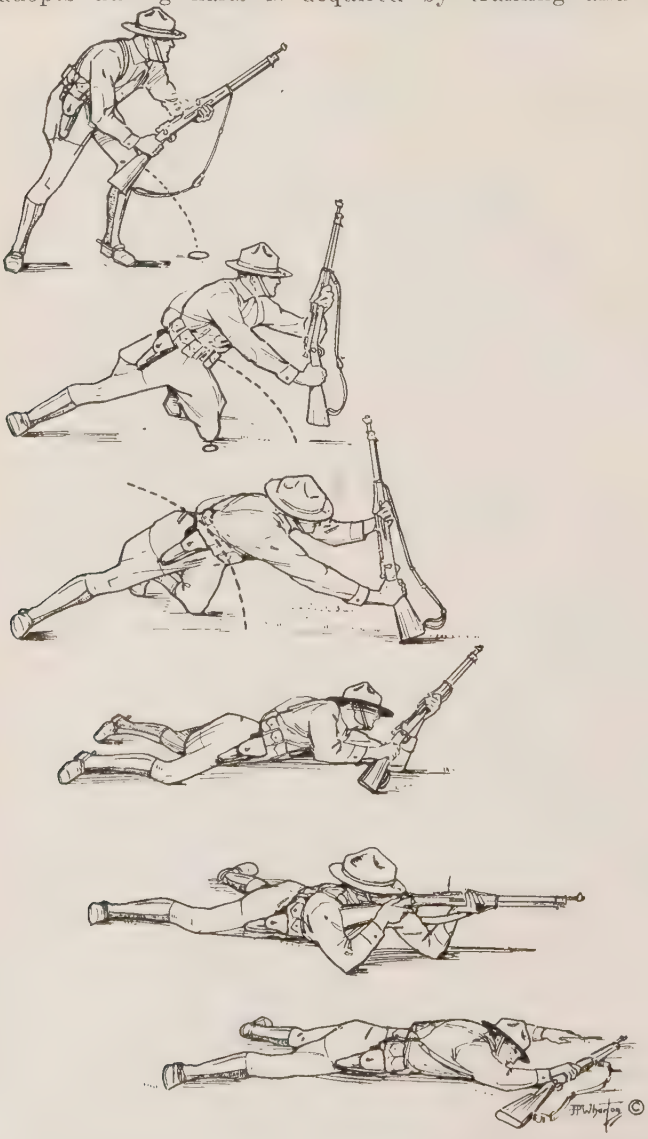


PLATE 5. The Dismounted Scout Taking Prone Position Rapidly from a Run.

method of changing from one location to another is likewise the result of careful schooling.

The following is recommended as a suitable position for the scout when prone:

The body is flat. One cheek is on the ground. The legs are extended and spread, the heels turned in, toes touching the ground. The arms are to the front, flat on the ground. If the rifle is carried it is grasped in the right hand at the balance, and rests on the ground (Plate 4).

Changing Position. The following hints will prove useful in training the scout to change from one location to another:

The scout first *prepares to change position* by drawing his arms in slowly until the hands are opposite the head, keeping the elbows down, and away from the body. (Plate 5).

He next quickly *raises his body* by straightening the arms. He shifts the weight of the body to the left arm and leg. Then throwing his right leg forward, he jumps off to the right front. (Plate 6).

Running. In making the bound the body is bent forward as low as possible. The left shoulder is advanced. The rifle is held in both hands, right hand at

PLATE 6. Correct and Incorrect Methods of Creeping.

the small of the stock, left hand just above the lower band (Plate 4). When the next cover is reached, the prone position is taken rapidly as described below.

Dropping to prone position. First, the left foot is advanced and turned in across the front of the body. Second, the scout drops forward on the left side of the left knee and at the same time holds the rifle forward vertically in both hands so that the butt strikes the ground a full arm's length directly in front of the left knee. Finally, pivoting on the left knee and the butt of the rifle,

PLATE 7. Crawling.

the scout falls into the prone position with the rifle on the ground to the front. A scout without a rifle drops in the same manner, except that he throws his left arm over his head and rolls forward on his left knee, left hip, and left shoulder, taking care that his hands do not get under his body. (Plate 7).

Often the rush from cover to cover becomes too dangerous a proceeding, especially is this the case when the enemy is known to be in the immediate vicinity. Movements of this nature would readily be discovered and the scout would accordingly fail in the accomplishment of his mission. In such a situation the scout resorts either to creeping or crawling.

Creeping and Crawling. In *creeping*, the body rests on the knees, the elbows and the forearms. The head and buttocks are kept down. The knees are always behind the buttocks and never under them. The scout should turn his head slightly and watch his cover from the corner of his eye.

The scout in the prone position commences to *crawl* by first drawing his hands back beside his head, keeping his elbows down. He then draws up the right leg and with it pushes the body forward, raising slightly on the forearms while

moving. At a distance from the enemy and where cover permits, he can advance faster by rising rapidly on his forearms and pushing alternately with each leg. The scout's face is so placed on the ground so as to allow him to look in the direction of his cover. (Plate 7).

Creeping and crawling are slow and tiresome methods of moving. They are employed when the scout is greatly exposed to view in the open or behind inadequate cover. The particular method of movement to be employed in any case must be determined by the scout's mission, especially the distance to be travelled and the time at his disposal, the nature of the available cover, and the probability that the locality is under observation by the enemy. As a general rule it may be stated that when cover is good and while at a considerable distance

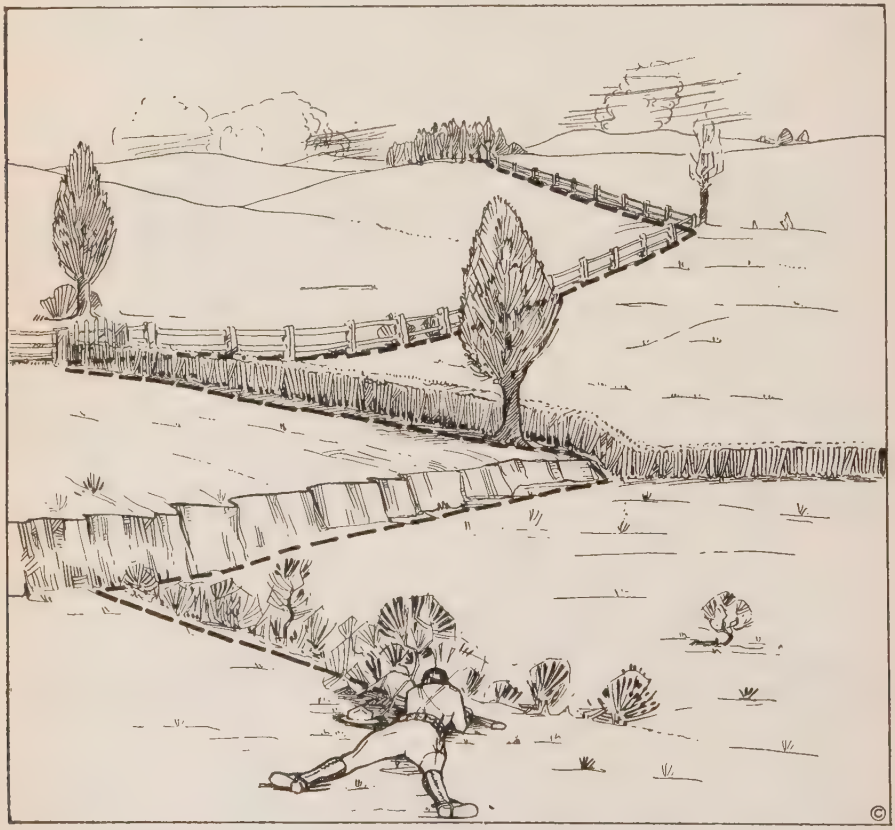


PLATE 8. Dismounted Scout Selecting Covered Route for Advance.

from the enemy, the scout may move at a run. As he approaches the enemy or as cover becomes poor the scout becomes progressively more cautious, adopting the slower but less conspicuous methods of moving.

Swimming. If it be necessary to swim in the presence of the enemy the scout may escape discovery by concealing his head in or behind a branch of a tree, some brush, a raft of driftwood or any other natural looking flotsam which will serve the purpose. He should carefully avoid splashing, keeping his feet always below the surface.

The Advance by Bounds. Dismounted. The usual mode of advance is by bounds. Having gained a covered position, the scout selects the next position in the general direction of his advance. He then selects the most direct route affording reasonable concealment by which he can reach the next position. He

selects intermediate stopping places if necessary. These should always afford concealment. He decides what method of movement he will use on each portion of his journey. (Plate 8).

Individual Movement by Day. Mounted.

Route. Before starting, the scout should decide on the general route to follow. This is determined by the cover afforded and the activity of the enemy. Sometimes he may have to make a wide detour to avoid open spaces. At other times the presence of the enemy may cause him to leave his route for a time.

In general, progress is made along hedges, hollows, woods, and ravines which run parallel, or nearly so, to his direction of advance. Advantage should be taken of them even if it causes a slight detour. On the road the scout will usually be less visible if he travels along the side. The footing is also softer as a general rule, which not only saves the horse, but deadens the sound as well. At all times, places which might be used as enemy observation posts are noted and the scout moves as though he were being observed from these points.

Advancing by Bounds. As in dismounted work, the advance mounted is also made by bounds. From one covered position the scout selects another covered

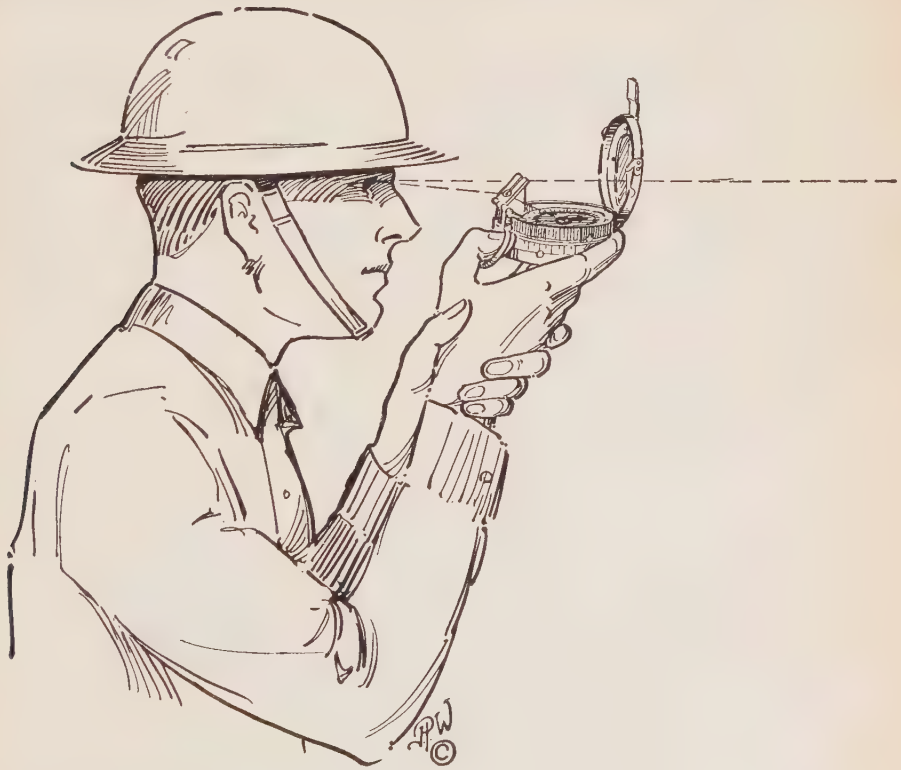


PLATE 9. Use of the Compass.

position along his line of advance, for his next stopping place. Before leaving one place he looks carefully at the next for any sign or movement which might reveal the presence of the enemy.

Conduct of Scout. Mounted. If there is no cover the scout moves rapidly across to his next observation point. If fired upon he gallops to cover and continues his mission.

On approaching an observation point the scout remains mounted long enough to determine that the enemy is not in possession of it or is not in the immediate

vicinity. He then holds or ties his horse and continues his observation dismounted. When there are two men, both should make the observation dismounted. When there are three, two should make the observation and the third hold the horses.

In leaving a place the scout should withdraw slowly so as not to attract an enemy observer's attention. He may even move in the opposite direction a short distance.

The Use of the Compass.

In seeking information when the enemy is distant, or when separated from or preceding his unit during battle, the scout will very often find it necessary to make his way over unknown territory, maintaining his direction frequently by use of the compass. The scout is taught that the compass needle at rest points to the magnetic north; that the angle any line makes with the magnetic north and south line, measured clockwise from the north, is the magnetic azimuth of that line. Practice is given the scout in reading azimuths to various distant objects, in reporting what objects may be seen at azimuths designated by the instructor, in orienting a map by means of a compass, and particularly, in marching on an object the magnetic azimuth of which has been furnished him. See Plate 9.

To Maintain Direction Without a Compass.

While a scout should rarely if ever start out without a compass, there are times when this may occur. His most common means of assistance are the heavenly bodies and geographic features. To the experienced scout other means will sometimes present themselves.

By Watch and Sun. If the sun is visible, the scout can determine direction by means of his watch. He points the hour hand of a watch running on standard time at the sun. Half way between the hour hand and twelve o'clock is the true south. (See Plate 10).

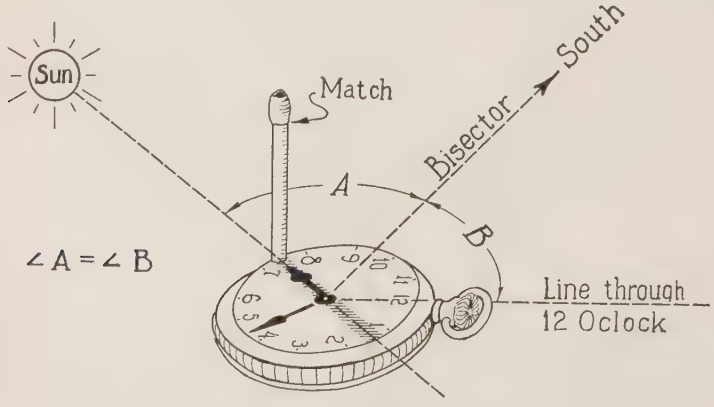


Plate 10. Determining Direction by Watch and Sun.

As the weeks and months pass the scout should observe and bear in mind the directions and hours of the rising and setting of the sun and moon and the positions of the former at various hours of the day and the latter during the night. There are other heavenly bodies which he may profitably study, such as the North Star, Great Dipper, (see Plate 13) Scorpion, Orion, Pleiades.

Geographic and Other Features. A high mountain may guide a scout for a day or several days. He may skirt a forest for many miles. He may be guided by his knowledge of the direction of the flow of streams. He may follow a road or march parallel to it, merely returning from time to time to verify his route.

Other means are railways, smoke or cities, towers, heavier lichen on north side of trees in the northern hemisphere, telegraph lines, and character of vegetation.

Prior to starting on his reconnaissance the scout should fix in mind firmly the general direction of his travel and any other means of information that may assist him in finding his way out and his way back. Knowledge of the stream lines is the first essential to an intelligent idea of the country. En route he must bear in mind the changes of direction he makes. He must look back frequently on his way, so as to impress on his memory the appearance of the landscape as it will look to him on his return journey. This may be of great benefit to him to keep him from losing his way, especially if he is pursued.

Conduct of Scout if Captured.

In case a scout or any member of a patrol is captured, the enemy should be unable to secure from him any valuable information such as orders, maps showing locations of troops, or information about his organization. The only information he should allow the enemy to obtain is his name and rank. No reference should be made to his organization or the names of any of its officers.

CHAPTER II.

INDIVIDUAL CONDUCT BY NIGHT.

Night Scouting. In the usual case, night scouting will consist of moving mounted to the vicinity of a place near which observations can be made, and from there continuing the mission dismounted. The scout usually cannot approach close to the enemy, mounted, as the noise would betray his presence long before he could secure accurate information. The cavalryman must therefore be proficient in moving at night, mounted, as well as understand the principles of concealment applying to scouting at night, dismounted.

Precautions as to Concealment at Night. The following suggestions and cautions should be observed by the scout during night movement.

The scout should take advantage of any other noise to conceal the noise of his own movements or those of his horse.

If fired upon a mounted scout moves rapidly to cover and continues his mission. A dismounted scout if challenged or fired upon should remain absolutely motionless. The enemy will then often conclude that he has made a mistake. The scout should not return the fire unless the enemy advanced toward him.

Men who have colds in the head or throat and are apt to sneeze or cough should not be sent on night scouting duty. If inclined to sneeze press with the finger in the angle between the nose and the upper lip. If inclined to cough, close the mouth, hold the breath and press on the "Adam's apple."

If it is necessary to whisper, exhale nearly all the breath and thus avoid a hissing sound.

As a general rule the scout should prefer low ground for his movement, where he may be able to see the enemy on the skyline instead of the enemy seeing him. Care must be exercised, especially in damp weather, to avoid hollows and shell holes which might contain gas.

The scout should remain motionless when a flare is set off or any other light appears. The best time to move is immediately after the flare goes out. He should not look at flares, as the light temporarily blinds one.

Luminous watches or compasses should not be exposed to hostile view. Carry them in the pockets or concealed in the hand, not on the wrist or suspended from the neck. When using the instruments conceal them from enemy view.

Moonlight is probably more favorable for the scout than for the observer. If clouds are racing across the moon, utilize the darkness for movements and the light for observation. Make use of moon shadows for concealment.

Before starting on an operation get your "night eyes." This is accomplished by looking into the darkness for a few minutes.

Individual Movement by Night.

Many of the principles already given apply to movements mounted at night. No set rules can be laid down; much will depend upon the scout's skill. He must be able to make his way across country for long distances and thus arrive at a point from which observations can be made. In making his way across country the scout must place main reliance on the compass and his ability to locate and follow the North Star or other heavenly body. Main roads, defiles, and river crossings will probably be watcher by the enemy; he must avoid these. Villages and inclosures involve danger of surprise; they should be entered only in emergency. Side roads which run parallel or nearly so to the desired direction of advance should be followed wherever possible. The enemy is not so likely to watch unimportant roads as he is the main high-

ways. At night the scout will need to place great reliance on his sense of hearing. His sense of smell may warn him of camp fires, cooking, and the presence of troops generally. It is only by practice that confidence develops and movement at night becomes a fairly simple matter.

Individual Movement by Night. Dismounted. As stated in the beginning of this subject, the cavalry scout will in many cases have to dismount, conceal his horse, and make his observations dismounted. Thorough training in dismounted night scouting is essential.

The methods of movement by night differ somewhat from those employed by day. Thus, except in an emergency, as to escape from ambuscade, the dismounted scout seldom runs by night. The reason for running by day is to reduce the time of exposure to hostile observation. This reason does not exist at night.

A scout may walk within 100 yards of the enemy; he must however be trained in walking noiselessly. In walking through grass or low weeds, the scout should raise each foot until it clears the top of the vegetation, then plant it carefully, heel first. In walking on gravel or rocky ground the scout should avoid shuffling. The foot should be raised well clear of the ground and planted toe first, the heel being then gently and noiselessly lowered.

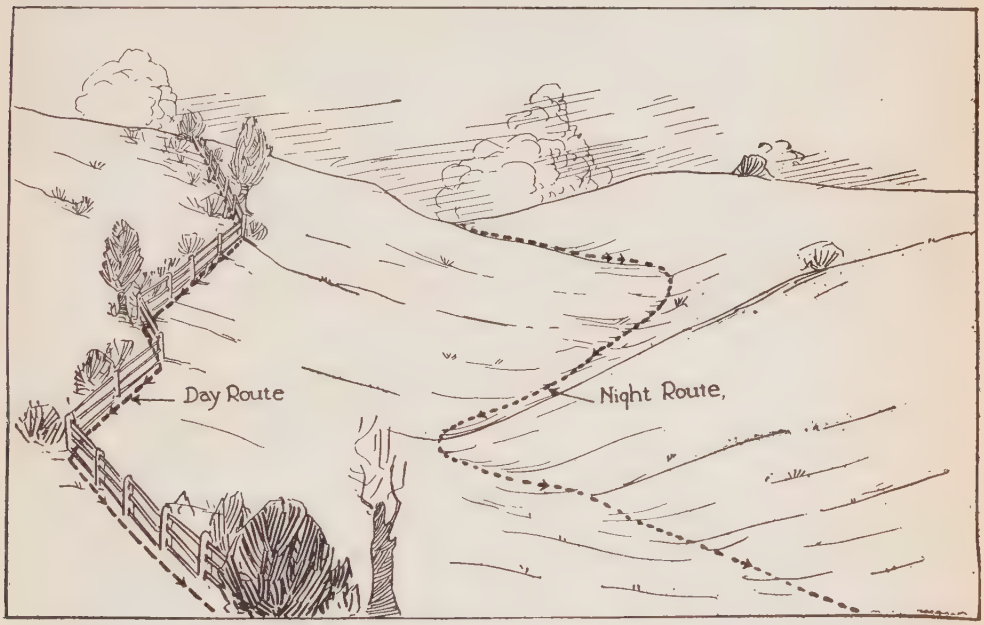


PLATE 11. Day Route and Night Route Over Same Terrain.

Creeping and crawling by night are executed in the same manner as by day, with the additional precaution that, as he can not see clearly, the scout must examine the ground immediately in front of him as he moves. He accomplishes this by feeling with his hands and by laying to one side any objects which might delay his progress or cause him to make a noise.

The methods of taking the prone position and of rising and jumping off employed during the day and heretofore described, find little application at night. The necessity for great speed does not exist. Accordingly to take the prone position at night, the scout comes to a halt with his right foot advanced, lowers himself on his left knee, and feels the ground in front of him with his hand (both hands if not armed with the rifle). He then lowers his body slowly by extending both legs to the rear, weight supported on hands and toes. He

rises by drawing back the hands to a position opposite the chin, raising the body first on the left knee and finally on the right foot. It is axiomatic that in night work the scout should frequently STOP, LOOK, and LISTEN.

Routes for Night Movement. As far as possible routes for night movement should be in the open, where the travel is easy. It is difficult for a mounted or a dismounted man to move at night through close terrain. (Plate 11).

During the day the scout will have opportunity to view the terrain after each bound, select his next stopping place and the best route thereto. At night this will not be possible. The mounted scout at night must usually follow a route which has been carefully selected in advance, using his compass and checking his position frequently. It will seldom be necessary to make wide detours for the sake of security. In general it is desirable for a scout to follow low ground in order to keep off the skyline, and to enable the scout to see landmarks, etc., in silhouette against the sky. (Plate 12).

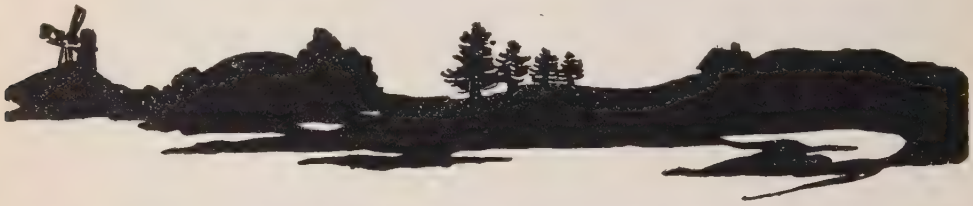


PLATE 12. **Night Skyline, Showing How Objects Silhouetted Against the Sky are Visible to the Scout.**

If he loses his bearings, the scout should never wander aimlessly about but should halt and think over the situation, endeavor to locate some landmarks by which he may determine his own position, using his compass if he has one.

Advance by Bounds. The advance by bounds is used at night to a greater extent when scouting dismounted than when mounted. The discussion which follows refers more particularly to dismounted scouting, though it is of general application to scouting, mounted.

When practicable and when the route would not thus be too devious, each bound should follow some terrain feature which will serve as a guide, for example, the edge of a wood, a road, path, railroad, or stream. When there is no such landmark to serve as a guide, the bound should be in a straight line or nearly straight line from one locality to the next, generally in open terrain where movement is not too difficult.

Directions are determined in advance from the map, and if the scout is provided with a compass, he uses it to follow the courses. If he has no compass he must determine direction by the North Star (Polaris, see Plate 13) and position by such landmarks as are conspicuous enough to be seen by night, viz.: hill-tops and gaps, woods, towns, lone trees, church spires, etc., and by the direction of the wind.

Each bound should end near some prominent object of the terrain which the scout can identify at a distance. Thus one bound might be from the edge of a wood to a freight house on a railroad running perpendicular to the scout's route. If he misses his direction he will strike the railroad at some point and probably be able to see the freight house. If not, he moves along the track in one, or if necessary in both directions, until he finds it. He is then oriented for his next bound. Changes of direction should be made at the end of bounds, not at intermediate points, except when following some well-defined route. As he proceeds the scout should note landmarks and his position with reference to them from time to time. This will aid him both during his advance and his subsequent return.

Guides for Night Movements. Scouts will frequently be employed as guides

in night movements. They should study their route from a map, and with the aid of an officer select their bounds, scale off distances and direction of each and record in their notebooks or make a rough sketch. They should also note

PLATE 13. Determining Direction by Polaris, the North Star.

any landmarks which would be visible, or roads, railroads, streams or valleys which cross the route of march. Usually the bounds should be from one such feature to another.

Finally, if practicable, as it often will be, the scouts should go carefully over the selected route by day.

When the march commences the scouts move out in the indicated compass direction endeavoring to keep in a straight line (except when following a route

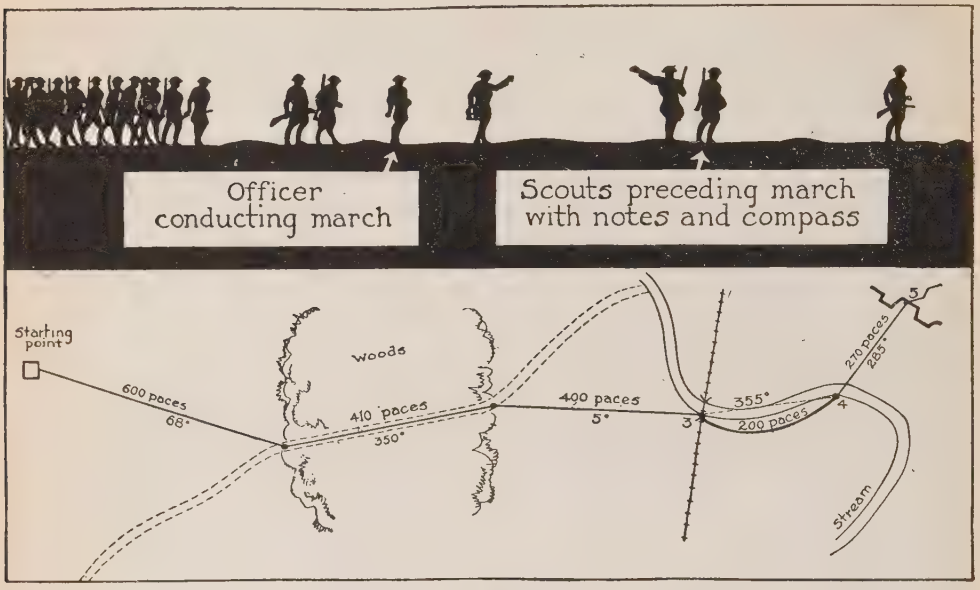


Plate 14. Scouts as Guides in a Dismounted Night March.

of travel) and checking direction frequently by any available means. They measure the distance traveled, and at the end of each bound locate the landmark thereat before starting the next bound.

A sketch and notes for a dismounted night movement are shown in Plate 14.

CHAPTER III.

OBSERVATION.

The purposes of the scout's training in concealment, while moving or while stationary are to enable him to move unobserved to a favorable observation point, and to conceal himself in that position. We shall now consider how the scout selects a position to observe the terrain and the actions of the enemy, and how he gathers his information.

Observation by Day.

The essential requirements of the scout's training for observation by day include:

Selection of observation points.
Movement to and occupation of observation points.
Study of the terrain and the enemy.
Interpretation of signs and trails.

Selection of Observation Posts. In order to carry out his mission of gathering information the scout must occupy one or more observation points. He must be skilled in selecting favorable points which afford good observation and can be reached without undue exposure.

Before starting out, if he carefully thinks over his mission and decides on a way of accomplishing it, the scout can readily tell from his map where he should go to observe. His actual observation stations, however, can usually be selected only on the terrain itself. The map guides him to the proper locality and he then selects the exact point he will utilize.

Commanding positions, that is those elevated above the surrounding terrain, will be chosen as a rule. But not always. There will be times when the bottom of a valley may be the most suitable place. Hilltops, crestlines, trees and buildings are favorable for observation.

The scout must conceal himself. His presence must not even be suspected. Therefore, of several good observation points he should choose the least conspicuous. It may be wise to sacrifice something for the sake of concealment. Conspicuous localities are nearly always closely watched.

For example: If the observation post be a tree, he selects one having a background which does not mark the tree in strong relief. (Plate 15). Also the tree should have enough foliage to hide the scout while he is in it, and it is desirable that its trunk be concealed by other trees so that the scout will not be seen climbing it. A tall tree in a wood or grove will be favorable. If the observation post be a building the scout should avoid exposing himself at a door or window. (Plate 16). If he occupies a crest he should choose a point where the line of the crest is broken by a depression, by rocks, trees or bushes. (Plate 2).

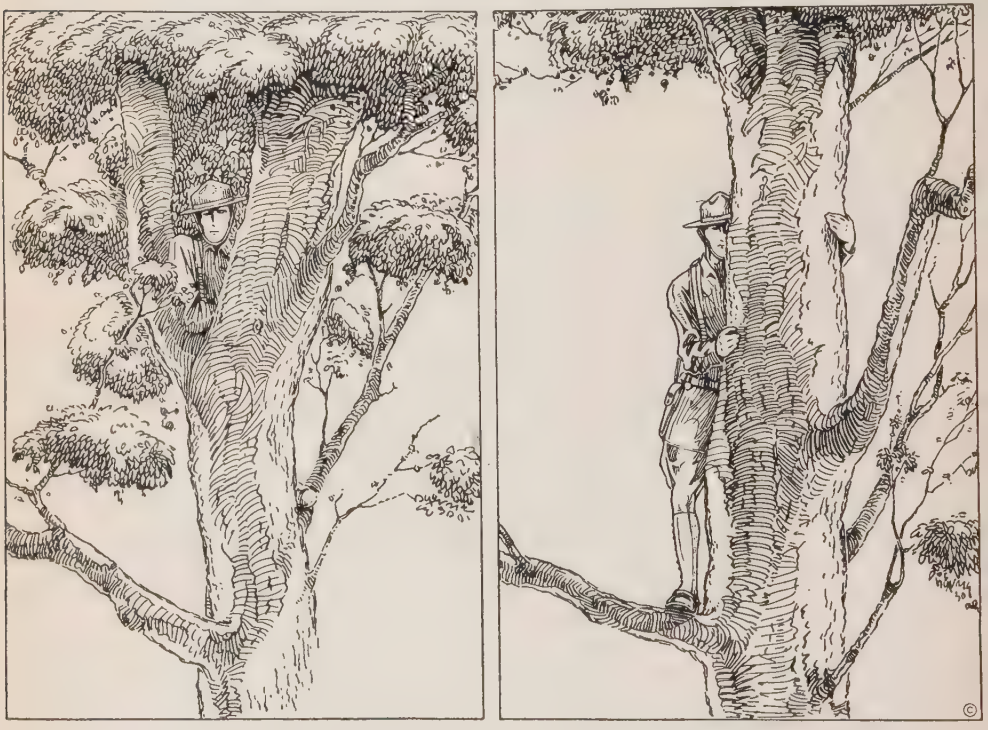
It is an invariable rule that all unnecessary movement while at the observation post is to be avoided.

Moving to the Observation Post. Having arrived in the general vicinity of a good observation post, the scout observes it closely for a few minutes for signs of enemy occupation. He notes all other places which might be occupied by the enemy and from which he might be seen, either in his position or on the way thereto. He selects a route to his position, with intermediate stopping places if necessary, so as to be hidden as far as possible from any enemy observers in the suspicious places. Sometimes it may be necessary to make a wide detour

to avoid an exposed route. Sometimes the known or suspected presence of a hostile patrol or observer may cause the scout to choose a devious route or seek a different locality for observation. In any event the route will seldom be a straight line. It is governed by two things; available cover or concealment, and the enemy.

Searching Ground from Observation Post. The ability to pick up even indistinct objects which are moving can be acquired by practice, without regard to a system of searching, since the eye is naturally attracted to moving things. But to pick out motionless objects requires systematic search.

The trained scout searches the ground within his range of vision in belts or



Correct
(Blending with background.)

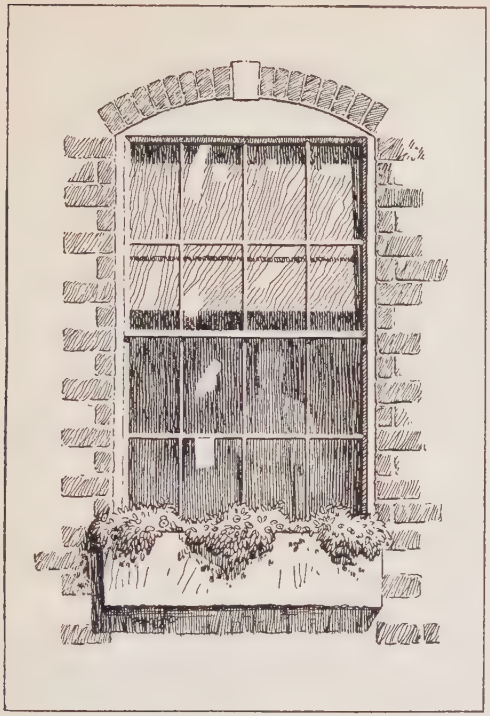
Incorrect
(No background.)

PLATE 15. Scout Observing from Tree.

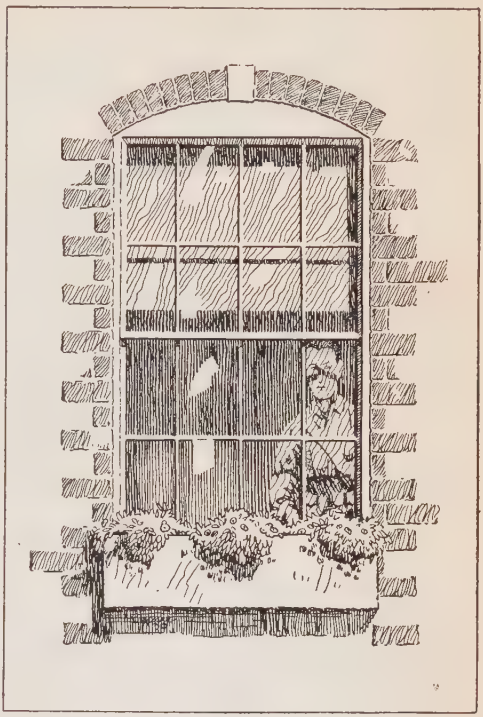
zones parallel to the front, at successively increasing ranges. He begins with the zone nearest him, that is in his immediate front, for here he may find his most dangerous enemy. He searches the belt systematically from right to left, omitting no portion of it. Places where an enemy might be concealed hold his eye longer than open spaces affording no concealment. In this manner, with his eye properly focused, he searches all places at the same range. He then proceeds to another belt farther out, but overlapping the first, and searches back from left to right, and thus proceeds until he has thoroughly examined all terrain to the front and well to the flanks within practicable range of vision. This search is made with the naked eye. If he is equipped with field glasses, the scout uses them for a closer examination of any suspicious spots. (Plate 17).

Accuracy of Observation. On all his missions the scout is the eye of his commander. If the scout's reports are wrong the commander's plans and dispositions based on these reports will be faulty, and perhaps result in disaster.

Therefore the scout should be absolutely accurate in his observations and reports. He should omit nothing, but should never relate more than he knows. He should not report as a fact something that has been told him or that he has



Correct
(Well back from window, concealed by darkness of room.)



Incorrect
(Too close to window, visible from outside.)

PLATE 16. Scout Observing from Window.

deduced from his observation. Statements of others and deductions made on the spot may be of value and should be reported, but the report should make it clear that these are not facts.

Observation by Night.

The scout will see very little at night and must depend chiefly on his hearing to obtain most of his information of the enemy.

As he moves about he should stop every once in a while, and listen intently. The ability to listen for long periods in perfect silence must be cultivated, for it holds the same place of importance in night scouting that observation does in day work.

During the late war enemy outguards were constantly located by scouts who lay outside of the enemy position and listened intently for the inevitable whisper, cough or movement, which disclosed their location.

The trained scout who has a compass will take an azimuth on sounds made in the enemy lines at night, estimate the distance to them and make a note of it so as to be able to plot their position on his return.

The distance that an object can be seen at night is very limited. But by getting the eye close to the ground and the object against the sky, it can be seen more clearly. (Plate 12). Low-powered field glasses will also extend the range of vision.

Before starting on night reconnaissance the scout should have studied the

terrain in which he will move, from day observation posts, from maps and airplane photographs. Compass directions to all prominent points should be noted in advance.

Routes for dismounted night movement should be in defiladed (dead) ground as far as possible, that is, ground which cannot be reached by hostile fire.

Practice should be had in accustoming the eye and ear to different impressions which objects and sounds make under night conditions. Estimation of dis-

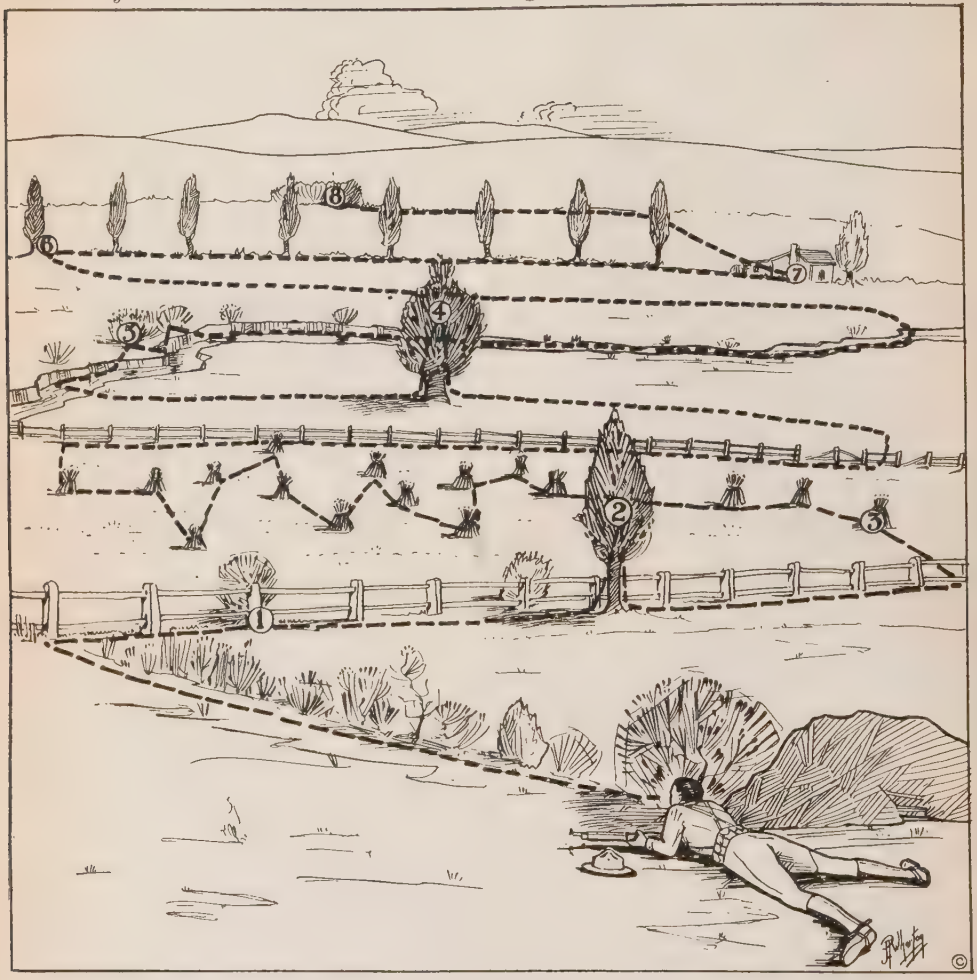


PLATE 17. Scout Searching Ground.

tance by eye, and of nature, direction and distance of sounds should be practiced.

The scout acting as listener should be able to interpret the usual sounds heard by night, such as: footfalls in various kinds of soil, the manipulation of a rifle, the rattle of equipment, a gun butt or other object striking the ground, conversation, whispers, laughter, coughing, sneezing, excavation of earth (digging), driving pickets, erecting wire, etc. He must be able to judge the distances and directions from which such sounds come. He will be aided occasionally by his vision.

Recording the Observations. The essential items of equipment for a listener are a pad or notebook, a pencil, luminous watch and compass.

The notebook should be small and bound at the top. The pages are numbered, and a rubber band is employed to separate used pages from blank pages, to avoid the possibility of writing one entry on top of another in the dark.

Unless the location of the observation or listening post is already plotted on a map the scout's first operation is to fix his own position. This he does by taking the compass azimuths of two landmarks which are visible by night and are known to be on the map. These points should be selected in advance, during daylight.

The scout now listens for significant noises, and records them in his notebook, using a page for each observation. Four entries are required for a complete observation, thus:

1105	(Time).
70	(Azimuth).
150	(Range).
Outguard	(Description).

These four entries, always in the same order, may be made in the dark by using a quarter of the page for each. The page is then turned and the next observation recorded on a fresh page. If the "description" involves a number of words it may be written on the back of the page.

The compass and watch are placed on level ground under the scout's eye, the ground being leveled off with the hand or a stick, if necessary. As soon as a

PLATE 18. Scout Observing at Night.

sound is heard the scout notes its direction and points his compass sights toward it. While the needle is coming to rest he estimates the range. (Plate 18.)

He then determines the compass azimuth, notes the time, and enters the entire observation in his book.

Reading Compass at Night. It is impossible to read the compass closely in the dark. By the aid of the luminous points, however, it is possible to take compass readings to the nearest 10°, and a skilful man can read them to the

nearest 5°. For observations at close range this will usually be sufficient. For the more distant sights by which the scout locates his own position a closer reading is desirable. This may be accomplished as follows: The compass being set on a level spot, direct the sights on the first of the distant objects whose azimuths are to be read. When the needle or card comes to rest, turn the ring until the luminous mark on the glass is exactly over the needle. Now direct the sights on the second point and when the needle comes to rest clamp it carefully in its position. The compass may now be closed and taken back, where both readings may be made by artificial light, one being recorded by the luminous mark on the glass, the other by the clamped card. It will be evident that to record thus two readings for future examination it is necessary to have a compass in which the card is not unclamped by opening the case. When practicable the scout may carry several compasses, and use one for each observation, clamping the needle when it comes to rest.

Interpretation of Signs; Trailing.

Certain deductions are warranted from certain facts and the trained scout should be able properly to interpret what he sees.

Fox example, the scout should be familiar with the appearance of tactical units on the march, in camps or deployed. This knowledge is gained by frequently observing units of known strength at varying distances, as during maneuvers.

The scout should be able, as a result of practice, to interpret the tracks and other traces of men, animals and vehicles, on the road or in camps.

The principal signs of the trail are: Tracks of horses, mules, vehicles, and persons, droppings and disturbed vegetation.

Trailing is the ability to discover and interpret these signs.

The practical value of the ability to trail is that it assists the scout in finding his way in unknown country, aids him in determining hostile strength, composition, movements, morale, probable intentions, and habits, enables him to follow the enemy and to avoid ambush.

The factors to be considered are the characteristics of the different signs, directions indicated thereby, the age of the trail, and the effect of climatic conditions thereon.

Horses at all gaits make the deepest indentations with the toe of the hoof. The faster the gait the deeper are the impressions. The hind feet are generally longer and narrower than the forefeet. At different gaits the tracks of each pair of feet appear in different relation to each other. Mule tracks are smaller, longer, and narrower than those of the horse, and the stride is shorter.

Tracks left by vehicles afford an indication as to their number and type, whether automobiles, trucks, wagons, artillery, or vehicles used by the civilian population. Animals pulling a heavy load close in towards each other and dig in their toes. Deep wheel tracks indicate heavy loads. Direction of movement will be indicated by the animal's tracks if the vehicle was animal drawn. For motor-driven vehicles direction may be told by observing the bare spaces made in jumping small bumps, the wheels making the deepest indentations at that side of the jump toward which the vehicle is going, or the earth or sand being displaced outward and away from the direction of travel. A motor vehicle passing through a puddle leaves a muddy track on the side towards its direction of travel. In our country it turns to the right in passing a vehicle coming head-on, and to the left in overtaking and passing a vehicle traveling in the same direction. Troops usually keep to their right in marching. In some foreign countries the rules of the road are different. Even when a column has passed, a few individual footprints can be found, indicating the direction of march and the time since the column passed.

Tracks left by persons may indicate by their shape whether they were made

by soldiers or civilians and, if the former, whether they were friendly or hostile. From them the trained scout may estimate the size of the force, their rate of march, formation, and possibly the length of a column at one of its halts. The length of the stride and the nature of the footprints will indicate whether a man was running or walking. A man running digs in his toes.

The droppings of animals will indicate the time since a column has passed. Fresh droppings are soft and moist and have an odor. They first lose their odor, next dry on the surface, and finally harden.

Halting places are easily recognized. Tracks leading to farm houses, wells or orchards indicate poor discipline.

Articles of equipment found along the road or in an abandoned camp site indicate the arm of service and sometimes the organization to which the losers belonged. When found in large numbers they indicate a low state of morale and discipline.

The number of kitchen fires may give a good idea of the enemy's strength, if his method of preparing food be known. For example, one fire may mean one troop. Camp fires at night give an estimate as to the size of the force, or at least may indicate the size of the camp ground.

Particles of food that are dropped may show whether the enemy is using his own rations or is depending upon such as he may requisition.

Fruitful sources of information are post cards, letters, lost diaries and orders, telegrams, newspapers, and other documents. If the scout has time he may obtain information thereby to help him in his own mission, but usually the best procedure will be to forward these articles to higher authority, usually the intelligence officer of the command.

Such things are found in former camp sites and billets, on prisoners, along the road, in post and telegraph offices, and the scout should lose no opportunity to collect and forward them.

Where they are numerous and bulky, he may be able to carry off only a few. Those indicating the identifications, positions, and movements of large forces of the enemy are the most valuable.

The scout should know the characteristic appearance of the usual works of field fortification, trenches, obstacles, machine gun emplacements. He should be able to judge the approximate caliber of a gun from its appearance, or from the appearance and sound of a bursting shell. He should be able to recognize a machine gun or howitzer unit from the characteristic appearance of its transport. Such information is of great value to the scout's commander.

Estimating Size of an Enemy Body. The strength and composition of hostile troops must be observed. If they can not be counted, their strength may be estimated by the length of time the marching column consumes in passing a given point or by the area covered if in camp. Infantry in column of squads may be assumed to occupy ½ yard per man; cavalry in column of fours, 1 yard per trooper; artillery in single column, 20 yards per gun or caisson. A given point is therefore passed in 1 minute by—

175 infantry.
200 cavalry at a trot.
110 cavalry at a walk.
5 guns or caissons.

For troops in column of twos this estimate is reduced by half.

A thick and low cloud of dust indicates infantry; a high and thin cloud, cavalry; a broken cloud, artillery or wagon trains; a rapidly moving heavy cloud, automobiles or motor trucks.

The Faculty of Observation. A properly trained and fully observant scout can gather much information from tracks, etc., which would be meaningless to an untrained man. It is most important that he should cultivate his faculties of *observation* and *interpretation.* That is to say, he should observe everything

that is visible, and be able to interpret the meaning and know the importance of the things he sees.

The greatest difference between a trained scout and an untrained man lies in their powers of observation. Returning from a patrol, the trained scout will be able to report what sort of country he has passed through, the tracks he saw and all noticeable landmarks on his journey. This ability does not come naturally, but it is acquired by practice, not only practice in observing details while on patrol, but at all times. When a trained scout looks at something he sees it in all its details. Its size, color, form, etc., are all taken in at a glance. By practice the scout has acquired the ability to detect those slight differences in things which the ordinary man passes by without notice. These slight differences are often of great importance in military operations.

Examination of Prisoners.

The responsibility for the examination of prisoners rests with the intelligence service. Often there is a short preliminary examination by the troops who capture them, but they are then sent on as rapidly as possible to division and corps, where the more detailed examinations are made.

The preliminary examination is usually conducted by an intelligence officer, but in his absence the troop officer may conduct it. In the absence of these officers or in small operations it may devolve upon the scout to do so. The taking of prisoners is frequently an important part of the mission of a patrol, and the scout may be the only member trained to examine prisoners when taken.

The first thing is to disarm the prisoners and then separate them into classes: (1) officers, (2) noncommissioned officers, (3) privates. A note is made of all units represented. This information may be gotten by examination of insignia or by questioning. A few questions may be put, such as—

When did you arrive in this region?

Where is the rest of your battalion or regiment?

What troops are on your right? Left? In support? Where are they?

Where are your machine guns? Artillery?

What are your means of signaling?

Under what orders are you operating?

The questions should be asked in such a manner as not to suggest an answer.

Documents, letters, etc., may now be taken from the prisoners, or they may be allowed to retain them until a thorough search can be made at higher headquarters, care being taken that they do not throw away or destroy such articles.

The preliminary examination completed, prisoners are sent on as expeditiously as possible to higher headquarters.

It will be noted that the preliminary examination is to secure: first, items of local importance to scout, patrol leader, or other local leader, such as other enemy in the field, his position and movements; second, to secure information desired by the unit or higher headquarters, such as identification of unit to which prisoner belongs, location, movements, and intentions of the enemy. This latter information, especially identification, is of great importance. By securing it on the spot it can and must be transmitted quickly to the rear, without waiting for the slower movement of the prisoners and their subsequent examination.

The questioning of inhabitants, repatriates, and our own men who have escaped from the enemy should be conducted along similar lines.

CHAPTER IV.

MESSAGES AND REPORTS.

Importance. As has been stated elsewhere a scout is the eyes, ears, nose and fingers of his commander. The scout's particular function is to observe and get word of the result of his observations back to his commander. Acting alone he will seldom get so far from the patrol or unit to which he belongs that he cannot visually transmit information by arm-and-hand, tracer bullet or prearranged signal.

If a pair of scouts is operating together, and necessity demands, one of them can carry information back to the leader. Messages and reports are more the part of the operations of patrols than of individual scouts, but as any trained scout may be called upon to lead a patrol, he should know how to write a correct message or report. A reconnoitering patrol is sent out to gather information, and no matter if it operates to perfection in a technical way, unless the leader sends back an accurate report of its findings the work of the patrol has gone for naught. A careless, inaccurate report is frequently worse than no report at all for it misleads and confounds the commander it was intended to help.

Comparatively few people can without training write a message that is at once clear, brief and correct. It is therefore doubly necessary that scouts and patrol leaders be carefully trained in this very important part of their duties.

In brief, messages are short notes which a patrol sends back from time to time during its journey. These notes (messages) form a running account of the subject of the patrol's mission. A report is a complete account of all that has been learned by the patrol, and is made by the patrol leader to his commander immediately after the return of the patrol.

Form and Contents of Messages.

Oral and Written Messages. Messages, like orders, may be either oral or written. Oral messages are commonly employed in combat, when distances are very short, when the messages are simple and the location of the scout or patrol sending the message is known or known approximately to the person to whom the message is sent. Oral messages also have the advantage that they cannot fall into the hands of the enemy, but they are exceedingly apt to become distorted in transmission. For this reason an oral message should be on one subject only, couched in simple language, a single sentence only.

The man who carries an oral message should repeat it to the person sending it and be questioned by him to make certain that it is thoroughly understood.

The man who carries a written message should be directed to read the message and have it thoroughly explained to him. He can then answer any questions that may be asked him when he delivers it, or in case the message is lost he can still deliver it verbally. When a message is sent to a considerable distance, and especially when it is necessary to report the location of the sender (as will usually be the case), written messages, often accompanied by simple sketches, will be the rule. On the back of the message, or its envelope, is written the name of the messenger, the time of departure and the rate of speed.

Form of Written Message. Messages will be more accurate and more readily understood if made in a systematic way, according to form. The message should include the following items:

1. *The serial number of the message (or title of the report).* Where several messages are sent by a patrol during a single journey of reconnaissance they should be numbered in chronological order, for identification, and so that the

commander may know whether or not any are missing. (When a single complete report is made by a scout or patrol upon returning, it should be headed "Report of ————————").

2. *The place from which the message is sent,* so described that it can be located on the map by the person who receives it. If this be some definite point marked by a conspicuous feature, it is so described, thus: "Church at junction of REESVILLE-LOWELL roads"; "Observation Post No. 3" will be sufficient if this is an established post whose location is known to the receiver.

If the location is at no definite point it may be identified by reference to one or more conspicuous points in its vicinity, viz:

(a) The distance and direction from a single prominent point, as: "In wheat-field, 500 yards, Azimuth 30°, from junction of REESVILLE-LOWELL roads."

(b) The direction from two prominent points, as: "Azimuth 30° from junction of REESVILLE-LOWELL roads. Azimuth 295° from bridge over SILVER RUN on LOWELL road."

The scout estimates the distances (see Range Estimation, Musketry) and takes azimuths with his compass. Hence the azimuth will be the *magnetic* azimuth, and is always so understood.

In the case of a final report of a reconnaissance during which several observation posts have been occupied, the report should describe the route followed by the scout or patrol.

The position may best be located by a simple sketch, giving the direction and distance *from the scout's position* to one or more prominent objects, by means of which the location may be plotted on the map. (See Plate 19).

3. *The date and hour at which the message is sent,* as: "August 10, 1930, 4:30 PM."

The time at which some event occurred is always of the greatest importance. For example: one scout may report seeing a troop of hostile cavalry on the march at a certain locality. Another scout makes a similar report from a different locality. Unless the times of these observations are stated, the officer receiving the reports has no means of knowing whether or not the *same regiment* was seen by both scouts.

4. *The name of the person to whom sent.* The message is usually sent to the officer who dispatched the patrol. To insure proper delivery it would appear to be advisable to include his rank, organization and location, thus: "To Lt. R. P. Lee, Tr A 1st Cav, CLAREMONT." But should the message be captured this would convey information of great value to the enemy. Accordingly if there is any possibility of the message falling into his hands, it should be addressed simply, "To Lt Lee," or "To C O." The messenger is informed as to just who the C O may be, and where he may be found or where the message it to be taken. If it be necessary to relay the message, the messenger should write on it (upon delivery) the full name, rank, organization and location of the officer for whom it is intended.

If there be any doubt as to the destination of the message it may be delivered to any officer or any organization headquarters, with a report by the messenger as to where it came from, etc.

Following the name of the person to whom sent, should be a notation of the manner of transmission: "By runner," "By motorcycle," "By telephone, from . . . . ," etc.

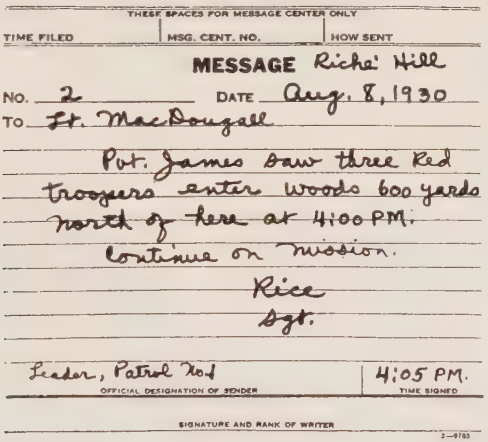
Items 1, 2, 3 and 4 form the heading of the message.

5. *A description of the objects or events which form the subject of the message.* The body of the message should include a brief but clear description of the objects or events reported. The scout should carefully distinguish between what he actually sees with his own eyes and what he deduces from his observations, unless the deductions are so plain and inevitable as to be correct

beyond a reasonable doubt. Also, he should not report as a fact or as his own observation something he has learned by hearsay, but important information from any source should be reported. An unqualified statement is understood to mean that the sender of the message is personally aware of the facts related or alleged. If this is not the case, the message should show clearly the source of the information, as "Pvt. Jones saw . . . ," or "A local farmer states . . . ," etc. Objects or events should be described in correct military language.

6. *The exact locality at which an event occurs or an object is seen.* The necessity of this item will be evident. The location of defensive works, or of hostile troops at a given time, are matters of great importance.

The scout furnishes this information by giving the estimated range in yards and the compass azimuth from his own position to the object or locality reported. (Plate 19.) Often a sketch may be used to advantage. Important locations may be shown on the same sketch as that indicating the position of the patrol.



THESE SPACES FOR MESSAGE CENTER ONLY

TIME FILED | MSG. CENT. NO. | HOW SENT

MESSAGE Richa Hill

NO. 2 DATE Aug. 8, 1930

TO Ft. MacDougall

Pvt. James saw three Red troopers enter Woods 600 yards north of here at 4:00 PM. Continue on mission.

Rice

Sgt.

Leader, Patrol Red — OFFICIAL DESIGNATION OF SENDER

4:05 PM. — TIME SIGNED

SIGNATURE AND RANK OF WRITER

3—9765

PLATE 19. Message from a Patrol Leader.

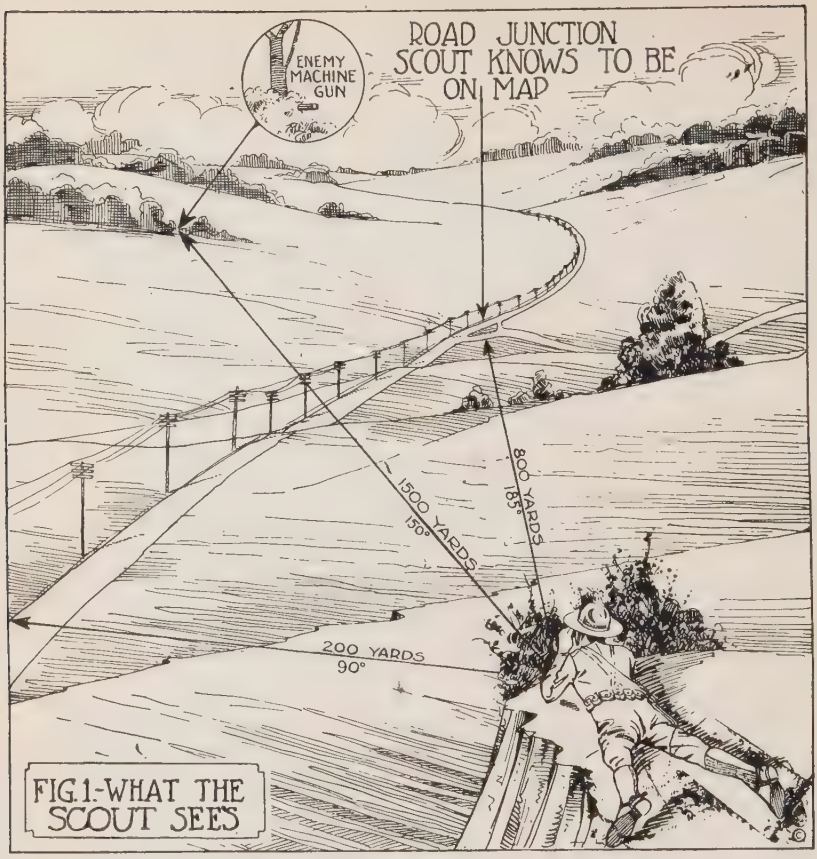
7. *The time at which an event occurs.* Usually this will be the same or nearly the same as the time at which the message is sent, but there should be no room for any doubt. Thus the report may state: "Just now . . . . ," or "About 5 minutes ago . . . . ," etc. (meaning 5 minutes prior to time stated at head of message), or the exact time of the event may be given.

The time at which an important event occurred is, of course, of even greater moment than the time at which the message concerning it was sent, both times should be given.

If several events are reported in one message, they may be related as one event or in succession, with all necessary information pertaining to each.

8. *A resume of previous messages.* This item should ordinarily be unnecessary. But if the sender of the message has any reason to fear that previous important messages may not have been delivered he should include in each message a resume of the most important information in previous messages.

9. *A statement of the next move of the scout or patrol.* This will usually be a brief remark such as, "Remain in observation," or "Continue on mission." If the conditions force the scout to abandon the further pursuance of his mission, or if he adopts some alternative, this should be conveyed to his commander. If there is any danger that the message may fall into the hands of the enemy, it should contain no information which might lead to the capture of the patrol. Thus, "I continue to LOWELL," would convey to the enemy (if the message were captured) information of the exact route of the patrol, as the place from which it sent the message would also be given. If Lowell were the place to which



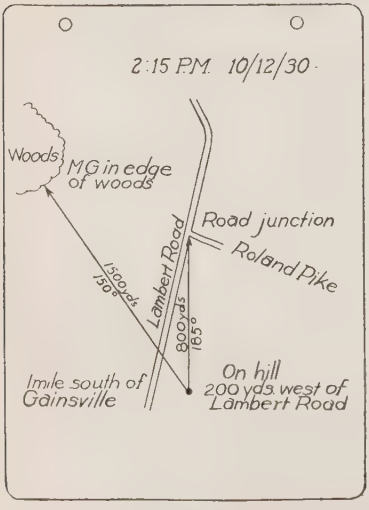


Fig. 2. How scout reports his observation.

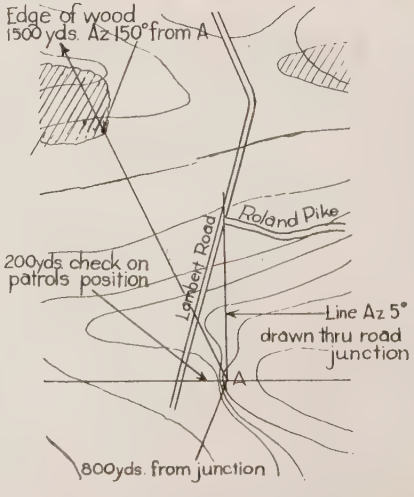

Edge of wood 1500 yds. Az 150° from A
Roland Pike
200yds check on patrols position
Lambert Road
Line Az 5° drawn thru road junction
A
800yds. from junction

Fig. 3. How officer receiving report plots it on his map.

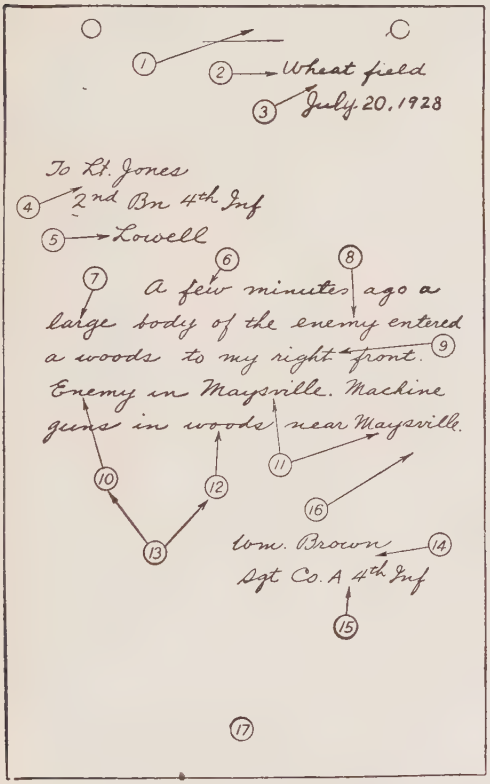
PLATE 20. A Scout's Report.

the patrol was directed to go, "Continue on my mission," would convey the same information to the commander, and no definite information to the enemy.

Items 5 to 9, inclusive, form the body of the message.

10. *The signature and rank of the sender.* The message concludes with these items. Unless his signature is very legible the scout should print his name under it in CAPITALS so that there may be no doubt as to his identity. The name of his organization should not be given, as this is usually unnecessary, and would convey valuable information to the enemy in case the message were captured.

It will be seldom that any one message will include all of the items listed. Those which are not applicable are omitted. Thus to take an extreme case, the message of a scout may be conveyed by firing tracer bullets at an enemy he has located. This single action includes most of the items we have listed. The message is sent to his section or platoon leader. The location of the scout, the



EXPLANATION OF PLATE 21.

1. What is the number of the message?
2. Where is this wheat field?
3. At what time was the message sent?

4-5. The enemy might send many patrols and spies to learn that the 2nd Bn 4th Infantry was in Lowell. This information is too important to risk giving it to the enemy by the capture of the message.

6. How many minutes, and from what time?
7. How large a body?
8. What kind of troops? In what direction were they moving?
9. Where are you and where are these woods?
10. How many enemy and what kind of troops in Maysville?
11. Names of places should be printed in CAPITALS.
12. Where are these woods, how close to Maysville and in what direction?
13. Where did you obtain this information?
14. Name should also be PRINTED under signature.
15. Same as 4-5.
16. What will you do next?
17. A sketch or two would help greatly to elucidate this hazy report. (See Plate 22.)

PLATE 21. A Careless Message Showing Many Common Mistakes.

date and hour, the identity of the scout, the general nature of what he sees and its exact location, will be apparent to the leader who observes him firing.

Wording of Messages. Messages should be written in a brief, compact style, somewhat similar to "telegraphic" language, but no words necessary to perfect clearness should be omitted. Military language should be used.

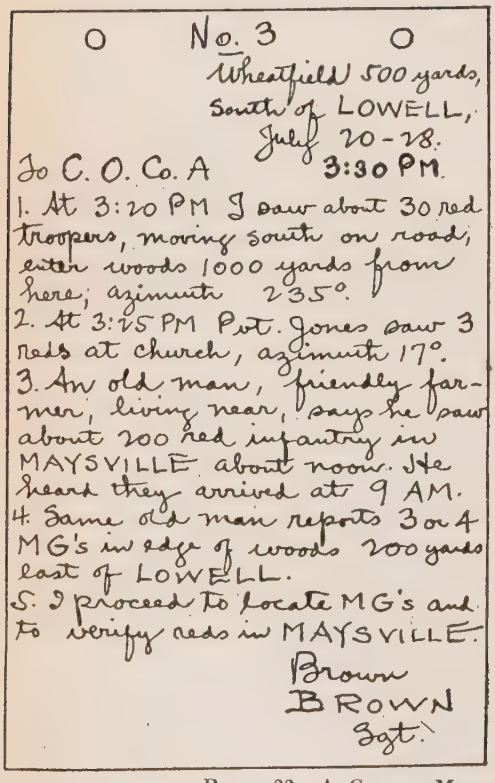
The items should follow the sequence given. Names of localities should be printed in CAPITALS, and the authorized abbreviations and punctuations should be employed.

Messages may be written on blank forms prepared for the purpose, or on a sheet of paper torn from a notebook. Sketches should be placed on the same sheet, usually on the back.

Terrain Nomenclature. In order to send a correct message or to make a proper report the scout must be familiar with the characteristic features of the terrain, and their usual names. He must know how to estimate distances, how to tell direction, including the use of the compass, how to make a simple sketch. He should know how to read a map.

Practically every order that a scout receives has in it some reference to a military feature of the terrain, and the usefulness of nearly every message he sends depends upon a proper understanding and employment of terrain nomenclature. Instruction in terrain nomenclature is included under Target Designation in the course in Musketry. The manner of estimating ranges is also included in Musketry.

Examples of Good and of Poor Messages. The message shown in Plate 21 is defective in many vital particulars. Actually it would convey far more valuable



O No. 3 O

Wheatfield 500 yards, South of LOWELL, July 20-18.

To C. O. Co. A 3:30 PM.

1. At 3:20 PM I saw about 30 red troopers, moving south on road, enter woods 1000 yards from here; azimuth 235°.
2. At 3:25 PM Pvt. Jones saw 3 reds at church, azimuth 17°.
3. An old man, friendly farmer, living near, says he saw about 200 red infantry in MAYSVILLE about noon. He heard they arrived at 9 AM.
4. Same old man reports 3 or 4 MG's in edge of woods 200 yards east of LOWELL.
5. I proceed to locate MG's and to verify reds in MAYSVILLE.

Brown
BROWN
Sgt.

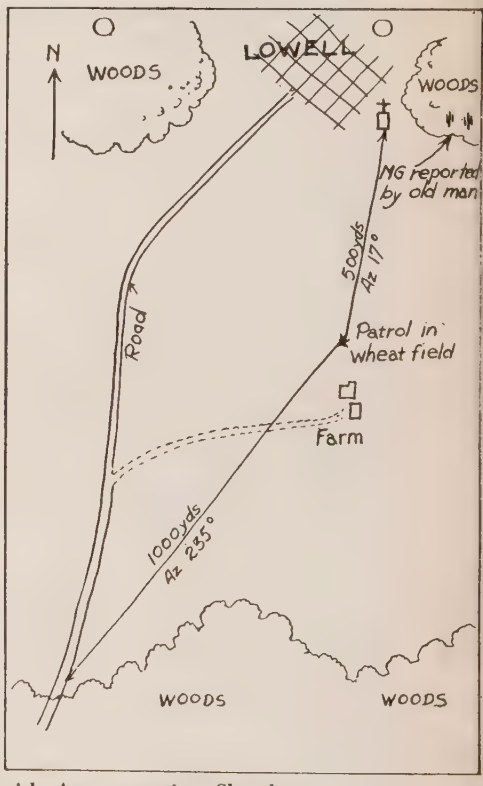


PLATE 22. A Correct Message with Accompanying Sketch.

information to the enemy, should it fall into his hands, than to the officer for whom it is intended. Plate 22 shows how the message should be written.

Sending Messages.

Methods of Sending Messages Back. In enemy country two messengers should be sent to carry a message. The leader may not want to spare that many, but if the message is of importance two men should be sent. If a message is not of importance it is better not to send it. Sometimes the simplest things are of great importance. In enemy country *very* important messages should be sent in duplicate, using different routes. In friendly country one may be sufficient.

A patrol may have several means at its disposal for sending messages back. In friendly country the telephone, or telegraph, if available, should be utilized whenever possible; motor cars or motorcycles may be borrowed for delivering

them. Time is thus saved and horses conserved. In enemy country, or when telephone, telegraph, or motor vehicles are not available in friendly country, reliance must be placed in mounted messengers. Pigeons may be sent with large patrols.

Instructions to Mounted Messengers. Read message to messengers, and be sure both understand.

Tell them the place where it should be taken.

Designate the messenger in charge.

Tell the leader to destroy message if in danger of capture, and, on getting through, to repeat it verbally to officer to whom it is sent.

Route to take; if necessary to leave road, the compass bearing to follow.

What to do after delivering message.

Gait.

When to Send Messages. A message should be sent as soon as the patrol has obtained the information it was its *mission* to secure.

Example. If patrol is sent to find out if any enemy is in the country to be explored, then the *first time* the patrol meets even the smallest fraction of the hostile forces, it should send a message giving that information.

But, on the contrary, if the patrol has been sent out to ascertain the strength and movements of the enemy main body or its location in a defensive position, and the patrol meets an enemy patrol, the patrol leader has no interest in this hostile patrol except to destroy it or avoid it. The mission is not being accomplished by reporting such small bodies, and therefore, no message should be sent.

Patrols should be given clear, definite, and positive orders.

The patrol leader must consider that he may be called upon to send several or many messages. He must therefore retain enough men to get back the important information he discovers. His own judgment must decide whether the information is of sufficient value to warrant the use of messengers.

Patrol Reports.

The patrol leader (if necessary) keeps notes of all information gathered and upon his return should make a report to his commander. The report is usually written. It covers in detail the following points:

Size of patrol.
Name of leader.
Mission.
Time of departure.
Time of return.
Route.
Number of enemy seen. Kind of troops. Where seen. Actions.
The attitude of enemy. (Alert or careless.)
The condition of the enemy defenses (wires, trenches, etc.).
General character of the ground passed over.
Condition of patrol. (Casualties.)
Any other information of importance, not included in the specific orders to the patrols.

The officer who sends out the patrol will transmit such reports to his next superior for the latter's information.

When several patrols are sent out on similar missions their reports may be received by an officer who then makes a consolidated report for his superior. If necessary he may take one or more of the patrol leaders, and any prisoners brought in, to his commander, to allow the latter to question them.

Example of the Report of a Reconnaissance Patrol. The following is an example of the report of a reconnaissance patrol.

Report of Patrol No. 1.
Tr. A, 4th Cav.

1st Plat Tr A
7:30 PM, July 12, 30.

To C O Tr A.

Strength. Five men.

Leader. Corp A (bearer of report).

Mission. Reconnoiter troop zone of action to village of ELLIS inc.

Time of dep. 1:52 PM July 12.

Route. Down SHELL CREEK to junction, up branch creek to edge of woods, to ELLIS and return.

Time of ret. 6:20 PM.

Information reported. SHELL CREEK fordable. Woods unoccupied. Limit of visibility, 40 yards. ELLIS unoccupied but signs of recent departure of enemy. Houses intact, water supply destroyed. Bridge over SHELL CREEK on road to ELLIS, strong steel tr., roadway 16 feet, 10 feet above creek. In good condition.

Enemy seen. Trooper and four horses near bridge, 2:20 PM. Mtd patrol, four men, passed through ELLIS 3:55 PM. One scout in woods south of town, 5:45 PM. Captured.

Remarks. One written message, forwarded from ELLIS 4:00 PM, received 4:45 PM. Sent to C O Tr. A with hostile insignia and scrap of order.

Prisoner herewith. No casualties.

X, Lt

The troop commander reads the report and questions the prisoner. He then sends the report to the battalion intelligence officer, with Corp. A and the prisoner.

CHAPTER V.

RECONNAISSANCE.

Cross-Country Riding as Training for Scout. Both the scout and his horse should be able and willing to make their way rapidly over all varieties of country. The scout will thus be able to reach good observation points quickly, elude the enemy if discovered, and bring back reports in the minimum of time.

Some of this skill will be acquired in the troop, but not all.

The instructor may lead the class in long gallops across country. The class should not ride in formation, but each man should pick his own route, as in the hunting field. The ride should include low fences, narrow ditches, slides, and rough country such as might be found in campaign.

The instructor, who may be mounted on a superior horse, should keep the test well within the capabilities of those who follow him. Difficulties may be increased as skill becomes greater.

The rides may be made more interesting at times by turning them into paper chases or flag races.

An occasion may arise when it becomes necessary for the scout, alone or in company with one or more companions, to cover a long distance in a comparatively short time, such as when the information can probably be obtained more readily by scouts acting in concealment than by a patrol or a reconnoitering detachment, or when valuable information must be delivered at a distant point within a short time.

Many factors, such as type of horse, weather, and footing, exert their influence, so that it is impossible to prescribe a standard. It is essential, however, that the scout be hard and in good health and the horse in good condition. The scout prepares himself by spending four or more hours in the saddle daily. The horse is conditioned by 2 or 3 hours' riding each day, in which he covers from 10 to 15 miles over varied country, mostly at the walk and trot, but with two or three periods of 5 to 10 minutes each at the gallop. The slow gaits build muscle while the rapid gaits strengthen the heart and lungs. Riding the horse accustoms the skin and muscles of the horse's back to friction. The intensive training of the scout and horse will ordinarily fit them for tests.

About every 2 months the scout rides over a prescribed course. A simple test in the beginning is 25 miles in 5 hours. As a final trial 50 miles a day for 2 days may be demanded. Experienced officers should lead the first rides, but eventually the scout should be placed on his own initiative.

In these tests chief weight should be placed upon the condition of the horse at the end of his ability to continue in campaign.

Scouting at Night. The scout and his horse must learn to get about at night. It may frequently happen that the scout will move at night to some point from which he can make observation at dawn. As roads, river crossings, and defiles may be watched by the enemy, it may be necessary for the scout to make his way across country for long distances. In moving at night the scout will have to depend upon the night compass and his knowledge of the heavenly bodies to guide him unless he is in a country which has become familiar to him through previous experience.

The scout will need to place great reliance upon his sense of hearing. His sense of smell, too, may warn him of camp fires, cooking, picket lines, water and the presence of troops generally. He may have to rely upon his sense of touch in following a trail.

All men are not equally skillful in moving about at night. Especially do those brought up in cities need instruction in traversing woods and fields. Objects do not appear the same by night as by day. Only by practice does the eye become accustomed to the variations and does confidence develop and movement by night become a simple matter.

Night exercises similar to those outlined above should be of frequent occurrence; weekly when other training permits.

The first night lessons should be dismounted but soon one half or more should be mounted. The latter should not be confined to roads but should lead over all varieties of terrain not too dangerous to horse or rider. The scout should practice both riding and leading at night.

The scout's horse stands in need of this training as well as the scout.

Methods of Reconnoitering.

The experience and training of the scout will be his best guide in reconnoitering his objectives or the various other features that he encounters. The suggestions offered below will be of assistance.

As a general rule the scout first makes a distant observation of the place from a concealed position to discover if the enemy is in possession. Then if

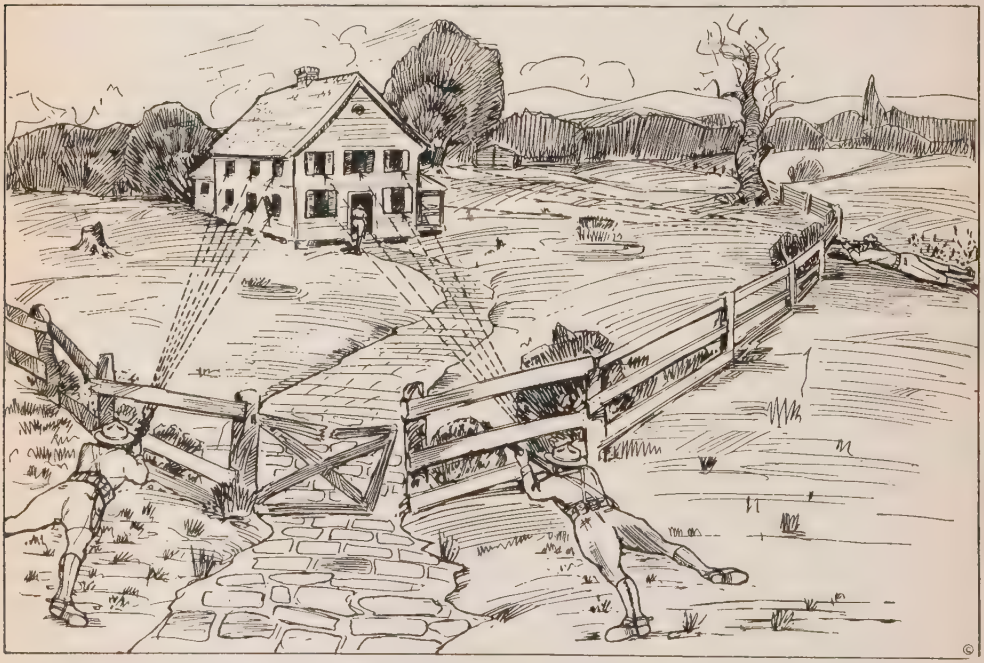


PLATE 23. Dismounted Scouts Reconnoitering a House.

his mission demands a *closer reconnaissance* he studies the intervening terrain in order to determine the best means of approach.

The scout avoids places such as houses, villages, and clumps of trees unless his mission requires him to approach or enter them.

The suggestions made below may influence or govern the scout in any close reconnaissance he must make.

House. The scout when alone approaches the house at a rapid gait, so as to reach it before occupants can prepare to resist him.

If there are two or more scouts, they approach rapidly from slightly different directions. Both or all do not enter. Part of the group remains outside prepared to fight. Another method is for only one or two of a group to approach

the house. The others dismount under cover a short distance away, in readiness to open fire on any one offering resistance. When concealment exists for dismounted approach close to the house, the scout or scouts who make the approach may well do so dismounted, unless the mission of the patrol requires a more speedy reconnaissance. (Plate 23.)

The fact that shutters are closed is not certain proof that the house is unoccupied.

Village. A village is approached in the same manner as a house.

If necessary to pass through it, the scout does so at a rapid gait. When there are several scouts they pass through in staggered formation, each prepared to fire into the doors and windows on the opposite side of the street.

Woods. A clump of trees is approached in the same manner as a house. In his previous observation of a large wood the scout may receive a hint of the presence of the enemy if he sees smoke arising or notices the flight of birds, or excitement or running of animals.

A large wood should be entered under cover if practicable. Once within, the scout should occasionally stop to listen as he will frequently hear an enemy before he sees him.

Hostile Camps. By skillful use of cover the scout may work his way near enough to a hostile camp to observe lines of tents, fires, and other indications upon which to base an estimate of the strength of the body in camp. If the enemy patrols are active, he may find it advisable to conceal his horse and approach the last mile or so on foot.

An Abandoned Camp Site. An abandoned camp site may be examined thoroughly and a very accurate estimate formed as to the size of the force that camped there. The condition of ashes and appearance of tracks, when considered in connection with weather, may give an idea as to when the camp was occupied. Letters, insignia, equipment, and other articles may reveal the enemy organizations.

Moving Troops. Moving troops may often be observed from hills, edges of woodland, towers, and other similar points. The scout must excercise great prudence and watchfulness to avoid being captured or driven off prematurely by the enemy security patrols.

Stream Crossing. When the crossing does not appear to be held by the enemy the scout should advance upon it rapidly. In crossing a bridge it may be well to move slowly, as the sound of the horse's footfall on it may carry a long distance. At night it may be advisable to muffle the horse's feet.

If there are two or more in the group, some should go across while others are prepared to protect them. The latter do this dismounted, as when a house is reconnoitered. When the first cross safely, the others follow.

The scout should note the length, width, and approaches of a bridge and be able to report upon its suitability for use by forces of the various arms.

The depth of water of a ford, its width, bottom, and approaches should be observed and noted.

If the crossing is held by the enemy, the scout seeks another crossing or dashes across, trusting to surprise and rapidity of movement for success.

COMBAT USES OF SCOUTS.

Troop Scouts.

Before Combat. Troop scouts are employed both before and after contact with the enemy in locating hostile units, determing the details of their strength, composition, movements, and probable intentions, and riding in front of their troop to indicate practicable routes of advance. They precede and cover the platoon and troop in the approach, march, and entry into the attack. They

PLATE 24. Observer and Sniper in a Tree.

maintain the direction of advance. They investigate dangerous areas. They select cover. When a command is stationary in camp, scouts provide for its security. When on the march, they perform important duties in the point of the advance guard as well as patrolling.

During Combat. Scouts fight as members of their squads during combat. During the attack they may also guard the flanks of their units. They lead the dismounted platoon when it advances by infiltration, they select firing positions and they locate and designate targets.

In the defense, troop scouts serve as lookouts, observers and snipers.

Snipers. Snipers are expert riflemen stationed in the forward lines of a defensive position for the purpose of firing on individuals of the enemy who may expose themselves.

Specifically their duties are:

1. To fire on enemy scouts or patrols who may attempt to approach or observe the position.
2. To protect observers and sentinels by firing at hostile snipers who are firing at them.
3. In case of attack by the enemy:
   (a) To fire on the leaders of the attack, thus disorganizing it.
   (b) To compel deployment at long range, thus indicating the nature and progress of the attack, and possibly delaying it.
   (c) To fire on individuals who are specially active in filtering to the front, also automatic riflemen and machine gunners.

Sniping is characteristic of both open and stabilized warfare. It will naturally be most intensively employed in the latter.

Snipers should operate in pairs, when sufficient men are available, and the scout pairs are habitually employed and should be trained for this duty.

After Combat. Troop scouts maintain contact with the retreating enemy and report upon his movements, strength, composition and probable intentions.

Intelligence Scouts.

Before combat, *intelligence scouts* may be used to work with patrols in the direction of the enemy and on his flank to obtain information of his strength, composition, movements, and probable intentions.

During combat they follow the assault echelons to observe the enemy and determine the character of the opposition, such as machine guns, that is locally holding up the attack, or fresh bodies of the enemy's cavalry. They investigate hostile positions, dead bodies, certain captured documents, and rapidly look over prisoners for new identifications as indicated by insignia.

After combat they gain further identifications on the battle field. They work with patrols around the flanks and rear of the hostile force in retreat, to determine the direction taken, and to locate concentrations and scattered units. They remain with patrols in touch with the enemy in case of hostile pursuit, so as to report enemy movements during withdrawals or retreats.

PRACTICAL EXERCISES.

A study of the principles and methods of Scouting and Patrolling is not sufficient to make a soldier a capable scout or a competent patrol leader. He must see these principles and methods illustrated and demonstrated in a practical manner, and he must be given practice, and lots of it, in applying the principles himself. And finally, before being pronounced qualified, he should be subjected to a practical examination and test as a proof that he has a *working* knowledge of the principles and methods of Scouting and Patrolling.

The following simple exercises, demonstrations and tests, illustrate the practical application of the principles that have been discussed in the text. They

should be taken in connection with the study of the theory. Additional exercises of a similar kind may be devised by the instructor or by the student.

Exercise 1. Demonstration. Concealment.

Purpose: To show the proper and improper use of cover.

Equipment: Three or four trained or partly tarined scouts with usual equipment.

Place: Any diversified terrain.

Procedure: Halt the class in a group at any convenient point.

1. Have a scout *move* on a *skyline*. Point out to the class how easily and quickly he is seen.

2. Have a scout look *over* a rock, a bush, a log, etc. Point out to the class how much he is exposed. Now have the same man look *around* the rock or log, etc., or *through* the bush. Point out how much less exposed he is.

3. Have the scout on the skyline, look over it toward the class, choosing a bare unbroken part of the crest. Next have the same scout observe the class from a part of the crest broken by a depression, bush, weeds, etc. Point out to the class how much more exposed the scout was in the first case.

4. Have a scout at a suitable distance move in front of a red barn or other building which contrasts with the uniform. Next have a scout move close in front of some bushes. Next have a scout move in front of an irregular clay or sand bank.

Point out to the class how, in the first case, the scout is very plainly visible against the vividly contrasting background; how in the second case the changing, varied, background of the bush blends to a certain extent with the uniform, making it harder to pick up the scout; and how, in the last case, the varied background of the same color as the uniform makes it very hard to pick up the scout. Point out that the closer the scout is to his background the better he blends in it.

5. Have a scout observe from a position in the shadow of a tree or building. Have another observe from the sunny side of the tree. Point out to the class how much easier it is to pick up the man in the sunlight.

Have the scouts crawl forward, one moving in the shade, the other in the sunlight. Point out to the class how much easier the movement betrays the scout who is not taking advantage of the shade.

6. Have scouts fire (or simulate firing) (a) *over* a stump, (b) around the *left* side of a tree, (c) from the *left* side of a door or window, (d) from the *top* of a bank, and (e) *over* a parapet.

Next have the same scouts fire around the *right* of the stump, around the *right* of the tree, from the *right* side of the door, from *behind* the bank, and through a scooped out loop-hole in the parapet. Point out how much less the scouts are exposed in the second case.

7. Have a scout look out of a window and a door standing close to the window and in the doorway. Next have the scout move back from the window and door still looking through. Have him go to the cellar and look out of a cellar window. Point out to the class how much less likely the scout is to be noticed in the second case.

8. Have a man lie behind a thin bush exposing his face and hands, and moving his heels and other parts of his body. Have another man lie behind the same or a similar bush covering his face and hands, and remaining absolutely motionless. Point out how the white face and hands of the first man indicate his presence, and how even a very slight movement of the body is noticeable.

Have three men, one in white clothes, one in blue clothes and one in service uniform lie partly concealed by thin bushes. Point out how conspicuous clothing shows the position of the scout.

9. Have two scouts lie, partly concealed, in the sunlight. Have one carry

a tin cup and the other some glistening objects and have them move these slightly. Show how these objects indicate the scout's position by reflecting the sunlight.

Exercise 2. Practice. Concealment.

Divide the unit into two groups. Have one group face to the rear while the other group seeks concealment. The first group then faces about and tries to locate them.

Have the two groups back to back. One group is instructed to take up the double time. When it has proceeded about 100 yards blow a whistle, for the members to take cover faced toward the standing group. Five seconds later have the standing group start a two-minute search. The exercise is then repeated for the other group. Compare results. Grade each group—each man found counting one point for observers.

Exercise 3. Demonstration and Practice. Individual Movement.

Purpose: 1. To show scouts how to execute correctly the various individual movements dismounted.

2. To practice scouts in executing these movements.

Equipment: Usual equipment of a scout.

Place: Any piece of terrain.

Procedure: 1. Have a trained scout take the prone positions firing and not firing. Point out all the details of these positions. (If no trained scout is available, have one man take the positions as directed.)

Now have each man in the class practice the positions, coached by another student.

2. Have a trained scout spring up from the prone position and run forward. Have him do it slowly at first and explain each movement to the class as it is performed. Then have the scout execute the movement rapidly and continuously. See Plate 4.

Have each man, coached by a student, go through the movement until it is mastered.

3. Have a trained scout demonstrate how to drop to the prone position from a run, first by the numbers and then rapidly. Explain and point out each movement.

Have each man, coached by another man, practice the movement until proficient. Then have coach and pupil change places. See Plate 5.

4. Have a trained scout demonstrate how to creep; explain the details of the movement. See Plate 6. Have each student, coached by another student, practice the movement until proficient. Have coach and pupil change places.

5. Have a trained scout demonstrate the crawl. Explain the movements. See Plate 7.

Have half the men, coached by the other half, practice until proficient. Have coach and pupil change places.

Exercise 4. Demonstration. Movement by Bounds. Mounted or Dismounted.

Purpose: To illustrate where and how to move, mounted or dismounted.

Equipment: Several trained scouts properly equipped, mounted if desired.

Place: Any diversified piece of ground.

Procedure: The instructor assigns simple reconnaissance missions. He discusses where the scout should go and how he should move. He has a trained scout execute these movements and encourages discussion by the class.

Exercise 5. Practice. Movement by Bounds. Mounted or Dismounted.

Purpose: To train scouts in deciding where and how to move and to practice them in movement.

Equipment: Usual; mounts if desired.

Place: A well diversified piece of ground (rolling, with ditches, bushes, and other features).

Procedure. Divide the class into three equal groups. Place two groups in good observing positions about 250 to 350 yards apart. Place the third group at a point about 250 yards from each observing group.

Each man in the third group is to assume that he is a scout moving on a line of advance which will force him to pass between the two observing groups who are assumed to be enemy observers. Each will: (1) Select the route he is to follow; (2) determine his intermediate stopping places; and (3) decide upon the method of movement to be employed in making each bound.

Have the men in succession move over the routes they have selected in the manner each has decided upon.

The observing groups will judge the relative efficiency of the men of the third group, based on how well they keep concealed during their advance, and their rate of progress.

The mistakes of the men moving should be pointed out to the observing groups as they are made.

Interchange groups and repeat the exercise. Quadruple the distances for mounted work.

Exercise 6. Demonstration and Practice. Night Movement. Dismounted.

Purpose: To train men to move at night.

Equipment: Usual night equipment of a scout.

Place: Any open terrain.

Procedure: (1) Explain the importance of walking properly at night. Demonstrate how to walk properly in grass. Have the class close their eyes and walk between two points without raising the foot above the top of the grass, and without planting the toe first. Next cause them to walk over the same ground in the proper manner. Call atttention to the difference in noise. Have the class practice walking in weeds.

(2) Repeat the procedure in (1) on hard, rocky ground.

(3) Have the students crawl and creep, blind-folded. Put wire, cans, rocks, etc., in their way and show them how necessary it is to explore carefully the area in front with the hands before moving at night, if they would avoid noise and possible injury.

Exercise 7. Practice. Night Movement. Dismounted.

Purpose: To train men to move noiselessly at night.

Equipment: Usual (black glasses or blind-fold).

Place: Trench area, littered with wire, cans, rocks, or any rubbish.

Procedure: Place several blind-folded listeners 50 yards apart. Divide the class into several groups and let one man from each group (wearing black glasses) approach each listener.

Each listener will point out any man he hears approaching. If there is a man in the direction he points the referee will rule him out.

Each man's score equals the number of paces he is from the listening observer when ruled out. Thus if he can reach the listener his grade is 0. If he is ruled out while twenty paces away his grade is 20.

The group receiving the lowest score wins.

Repeat with moving men blind-folded.

Exercise 8. Practice. Night Movement. Mounted or Dismounted.

Purpose: To train men to move noiselessly at night.

Equipment: Usual night equipment; mounted if desired.

Place: Outpost position.

Procedure: Divide the class in half, and post one half as outguards. Let the other half try to pass through the outguard line. Rule out men discovered. Change sides. Repeat and compare results.

Practice at night against a simulated enemy will develop the ability to move at night, provided the essentials of movement have first been mastered.

In later practice under night patrolling the student will have an opportunity to use the skill he has developed.

Exercise 9. Demonstration and Practice. Observation. Mounted or Dismounted.

Purpose: To train scouts to select observation points.

Equipment: Usual; mounts if desired.

Place: Any average terrain.

Procedure: 1. To select an observation point and route thereto. Give a simple mission of reconnaissance, point out to the student the observation points the scout should occupy in carrying out his mission, and the routes he should travel in reaching them. Explain the reasons why these positions and routes are selected.

The demonstration should be given first on a sand table, and later on the terrain.

2. Repeat the exercise both on the map and on the terrain, requiring the students to select observation points and routes and give their reasons for the selections.

3. Cause half the class to select an observation point on the terrain and occupy same. Cause the other half in pairs to approach the position from a distance of 300 to 400 yards. Interchange the two groups, repeat and compare results. Quadruple distances for mounted work.

Exercise 10. Demonstration and Practice. Observation. Dismounted.

Purpose: To train men how to occupy an observation post.

Equipment: Usual.

Place: Any diversified terrain.

Procedure: 1. Give a mission that will call for observation from a point not too far away. Then take the class to the field and show them by men placed in this position the contrast between:

a. A scout occupying a sky line, where it is broken and where it is not.

b. A scout observing from a roof, concealed in the shadow of a chimney, and one not so concealed.

c. A scout standing in the center of an open door (or window), and a scout who is observing from the side of it or from a position back in the room.

d. A scout in a tree without a background, and not close to the trunk; and a scout properly concealed in a well-chosen tree.

2. Take the class to a point of observation they have chosen from the map, and have them answer each of the following questions:

a. Where to halt in observation before occupying the position.

b. How long to halt, where to place led horses.

c. How to approach to the position.

d. How to occupy the position.

Demonstrate the answer to each question.

Exercise 11. Practice. Observation.

Purpose: To train men how to search ground.

Equipment: Field glasses for each man.

Place: Any diversified terrain.

Procedure: 1. Explain briefly how to search the ground and when to use field glasses.

2. Take the class to a point overlooking an area in which have been placed at varying distances and in various directions, individual men and groups or targets partly concealed. Let them search the ground. As each man locates an object, have him determine its compass direction and estimate the range to it, noting these with a description of the object on a sheet of paper which he will turn in to be graded. Check up on the method of searching ground used by the students.

3. Divide the class into several groups; send one group to an observing position where they will be provided with blank ammunition and told to remain in observation and fire at any man they see moving about. Cause the other groups to choose starting points nearby, select their route for the next hundred yards, and move on the position. Instruct them that when a shot is fired every man will halt where and as he is until the instructor blows his whistle to continue the advance. When a shot is fired the instructor will cause the firer to point out the man he thinks he has discovered. When and if this is done the man discovered is ruled out. At designated intervals of time groups change position and the maneuver is repeated. Grade each observing group 10 for each man discovered in the alloted time (as half an hour) and compare grading of groups. (Note that this exercise also gives practice in individual movement, and the use of cover.)

Exercise 12. Demonstration and Practice. Observation. Mounted or Dismounted.

Purpose: To develop the faculty of observation and familiarity with military features of the terrain.

Equipment: Usual; mounts if desired.

Place: Any diversified terrain.

Procedure: 1. *Identification of military features of the terrain.* Take the class to a point affording a good view of a diversified piece of terrain. Cause them to indicate examples of typical features named by the instructor, and to name features indicated by him. This instruction may also be given on landscape targets, or other landscape views (photographs, etc.).

2. *Study of tracks and other signs.* On an unused road or in a field have a man walk and run, a horse trot and gallop, and troops march at route step. Point out to the class the appearance of the tracks immediately after they are made, at the end of 20 minutes, after 24 hours, and after three days.

3. Demonstrate how:

a. The extent of a camp area will indicate the number of the enemy.

b. The tracks on the road will show what kind of troops are in the body and the direction of the march.

c. The state of the camp site and the material abandoned will indicate the enemy's condition as to discipline and morale.

4. Estimating the strength of an enemy. At a distance of 800 or 900 yards from the class have a platoon advance, using the following formation:

a. Line of squads at 40 yards.

b. Skirmish line at 5 pace intervals.

c. Advance by rushes of varying fractions.

d. Advance by infiltration.

In each case have the scouts estimate the size of the various elements moving.

Exercise 13. Practice. Observation. Mounted or Dismounted.

Purpose: To develop the faculty of observation.

Equipment: Usual; mounts if desired.

Place: Any diversified terrain.

Procedure: At various times while at drill.

1. Have class face in a certain direction for one minute, face about and describe what they have seen.
2. Have them describe a building after observing it one minute.
3. After moving along a road for a certain time or distance have them record:
   a. Houses passed.
   b. Nature of country on side of road.
   c. What vehicles have passed.
   etc., etc.
4. For indoor work, use drawings and book illustration, etc. Have the class look at drawings and then either describe them or answer questions concerning them.

Exercise 14. Demonstration and Practice. Observation by Night. Dismounted.

Purpose: To teach scouts how to observe (listen) at night.

Equipment: Usual.

Place: Any average terrain.

Procedure: 1. Identification of sounds. Demonstrate characteristic peculiarities of such sounds as: Working bolt of rifle, helmet striking wire, whispers, man walking, striking a match, trench excavation, erection of wire, driving pickets, and other sounds with which the scout should be familiar. Vary the distances to indicate effect on sound.

2. Distance, direction and origin of sounds. At night with the class in position listening, have certain sounds made at prearranged times and have each man note the directions, estimate the distances and tell what caused the sounds.

The following are suggested:

Digging.	Laughing.
Cutting wire.	Striking a match.
Whispering.	Rattle of equipment.
Coughing.	Bark of a dog.
Sentry challenge.	Loading a rifle.
Crawling.	Driving pickets.
Walking.	Helmet striking a wire.

Exercise 15. Practice. The Scout Pair as Observer and Sniper.

Purpose: To practice scouts in their duties as snipers.

Equipment: Usual. One pair of field glasses for each observer. Blank (or ball) ammunition.

Place: Any diversified terrain.

Procedure: In any suitable limited area place 7 or 8 men in concealed positions, giving each a number and signal, so that No. 1, No. 2, etc., may move when signaled.

Signal No. 1 target to appear.

Each observer will designate the target to his rifleman, and each rifleman will fire one blank cartridge as soon as he locates the target. The observer will then record his observation.

Signal No. 1 target down, and after a short interval signal No. 2 target to appear, and repeat the procedure.

If practicable an umpire may be stationed with each post, and the scout pairs may then be rated as to:

a. Accuracy of target designation.
b. Recognition of target from designation.
c. Time between appearance of target and firing of shot.

d. Accuracy of sight setting.
e. Correctness of estimation of ranges.

Upon completion of the exercise each man concealed should exhibit himself or plant a flag at his position. The instructor will then hold a critique of the exercise, encouraging questions and discussion.

Note. If facilities are available (including a safe back-stop for bullets), a number of paper targets, operated as explained in the course in Musketry, may be utilized, in which case the snipers may fire ball ammunition at such targets. This will add a touch of realism and interest to the exercise.

Exercise 16. Practice. Locating Danger Areas. Mounted or Dismounted.

Purpose: To teach scouts how to pick out danger places.

Equipment: Usual; mounts if desired.

Place: Any diversified terrain.

Procedure: An officer will take a number of men with colored flags (*e. g.*, red for riflemen, white for machine guns) and conceal them in appropriate places on the terrain.

The class now approaches the area and the instructor causes them to point out the danger localities or places likely to be occupied by the enemy, giving in each case the reason why the place is apt to be occupied, as: (a) Favorable for concealment; (b) Favorable for observation; (c) Affords cover from fire; (d) Favorable for frontal or flanking fire on an advancing enemy, etc.

Encourage discussion, cause the class to reject localities not favorable for occupation by the enemy.

Now cause the concealed flagmen to rise and display their flags. Discuss with the class the places thus indicated.

Repeat the exercise in a different terrain until the principles involved are thoroughly understood and the students can pick the danger places quickly and accurately.

Exercise 17. Demonstration. Scouts with a Dismounted Platoon.

Purpose: To teach scouts how to precede a platoon in dismounted attack.

Equipment: Two trained scouts.

Place: Any diversified terrain.

Procedure: Move class across terrain, scout pair preceding class by 20 yards. Point out and explain action of scout pair in the following situations:

(1) Approach of wood. (2) Entering wood. (3) Approach of house. (4) Passing danger point on flank.

Exercise 18. Practice. Messages.

Purpose: To teach scouts how to write messages.

Equipment: Usual. Watch, compass, pad and pencil for each man.

Procedure: Point out any terrain object such as a tree, house, etc., and direct the scout to write a message to Lt A at some definite point a mile away, locating and describing the object.

Require the scout to make a simple sketch to accompany the message.

Correct mistakes.

Repeat this as often as necessary, varying the situation, until each scout can write a message, quickly and accurately.

Exercise 19. Demonstration and Practice. Use of the Compass.

Purpose: To train men to move over long distances, mounted using the compass to maintain direction.

Equipment: Usual, including compass.

Place: Any open terrain.

Procedure: (1) Explain the fundamental operations with the compass.

Point out various objects at a distance and have each man read the azimuths and write them down. Check results.

(2) Explain and demonstrate how to tell the compass direction of an object from the map. Have each student determine the azimuths of at least five points not visible from his position on the ground.

(3) Explain and demonstrate how, knowing the compass reading of a certain object, the scout marches upon it. Give the class various directions of advance and have them face in the direction they would march and point out to you the first object on which they would march.

Exercise 20. Practice. Moving from Cover to Cover, Mounted.

Purpose: To train mounted scouts in deciding where and how to move and to practice them in movement.

Equipment: Usual equipment of a scout, mounted.

Place: Any varied terrain.

Procedure: (1) Assume a situation and take the class out over varied terrain. From time to time call upon various individuals to state where they would expect to find the enemy and why.

(2) Have students select their next observation place and point out their intended route to it, and give their reasons.

(3) Vary the exercise by posting certain students as observers. Designate others as scouts who are to move toward the observers. Have the observers fire blank shots when the scouts expose themselves.

Exercise 21. Practice. Trailing.

Purpose: To teach men to follow the enemy and to avoid ambush.

Equipment: Usual equipment of a scout, mounted.

Place: Any varied terrain.

Procedure: (1) A part of the class starts out, followed a half an hour later by the remainder. The latter are ignorant of the route taken by the former and can follow them only by trailing. Have the trail well defined at first. As skill increases make the trails more obscure.

(2) Have the pursued prepare an ambush during the course of the exercise.

CHAPTER VI.

PATROLLING.

Introduction.

With the possible exception of marching, more of the cavalryman's time will be devoted, in campaign, to patrolling than to any other militiary activity. Small cavalry units (squads and platoons) when they operate independently or semi-independently invariably operate as patrols. For example, the point of an advance or rear guard operates as a patrol; small security deatchments sent to the flank during combat are classed as combat patrols; squads and platoons sent on reconnaissance or counter-reconnaissance missions employ patrolling principles in the accomplishment of their tasks.

In the early stages of a campaign detailed knowledge of enemy main forces is ordinarily very meagre. To the air service and the cavalry is intrusted the duty of remedying this deficiency. Aviation gains information of a general nature; cavalry obtains specific information to supplement that of the air force. Cavalry gains the latter by pushing a number of small mounted detachments on distant reconnaissance close to the enemy. These detachments gain the required information.

Definition of a Patrol. A patrol is a small detachment, varying in size from two men to a platoon, sent out on an independent mission.

Security and Reconnaissance Patrols. Patrols may be classified in accordance with their employment into two general groups, viz: security patrols; reconnaissance patrols.

A *security patrol* is one whose primary object is to protect the larger unit under which it is operating from annoyance and surprise. For example, any unit engaged in combat is apprehensive concerning the safety of an exposed flank. For this reason a small group, a security patrol, is invariably sent well to the flank to give timely warning of a hostile threat from that direction, and to offer sufficient resistance to enable the main body to take proper steps to meet this threat.

A security patrol is closely bound to the larger unit sending it out, is intimately interested in it, and regulates its every movement upon those of the parent body.

A reconnaissance patrol is one whose primary object is to obtain information of the enemy, of the terrain, or of both. Patrols of this type have no other duty toward the unit sending them out than to obtain and deliver early and accurate information in accordance with the mission assigned. They naturally regulate their movements upon the enemy.

Patrol Leaders. A patrol may be commanded by an officer or a noncommissioned officer. For distant and important reconnaissance missions an officer is usually placed in charge of the patrol. An officer, also, normally leads a patrol as large as a platoon.

Orders to a Patrol.

When practicable orders to a patrol should be issued in the presence of the entire patrol. This usually insures a greater degree of understanding and cooperation than is probable where the order is issued to the leader alone, and then later communicated by him to the remaining members of the patrol.

Form of Orders to a Patrol. Orders to a patrol are *field orders*, and should

therefore follow the normal five paragraph form. These orders while usually issued orally, should also be handed to the patrol leader in writing. Paragraph 1, containing information of the enemy and of our own troops, is usually not reduced to writing. This is a safety measure to prevent, in case of capture, important information from falling into enemy hands.

Contents of a Patrol Order. Orders to a patrol should in general cover the following points:

1. Information of the enemy and of our own supporting troops.
2. Plan of the commander sending out the patrol.
3. The mission of the patrol, and the various details connected with its operation such as:

Size of the patrol; the designation of the leader; the unit to furnish the patrol.

Route to be followed.

Time to start.

Duration of the patrol; where and when it is to be relieved.

Line upon which the patrol is to halt for the night (or each night in case the mission extends over several days.)

The information desired. This should be stated in the form of questions, whose answer it is the duty of the patrol to furnish. For example: "This patrol will determine:

Is Hanover occupied?

Have enemy troops advanced as far south as York?

4. Such administrative matters as clothing, equipment, food and the authority to requisition food, forage and transportation.
5. When and where messages are to be sent. Whether negative information is desired.

Additional Information Given Patrols. Patrols are also given such additional information as may assist them in their task. For example, they are informed of the location of other friendly patrols; of our outpost line of resistance; of any contemplated move of the main command during the absence of the patrol. A map is usually given the patrol leader. If one is not available, he is shown a map of the route he is to cover and is required to make such sketches therefrom and take such notes as he may deem necessary.

Plan of the Patrol Leader.

The patrol leader, upon receipt of his orders, must make a plan for carrying them out. He normally considers his entire mission, and constructs a tentative scheme of operation covering its various phases. This plan, however, must be so elastic, that it may be readily altered to meet unexpected enemy developments, The patrol leader does not communicate the entire plan to his patrol, but only so much of it as pertains to reaching the first objective. When the latter has been gained, a second objective is designated, and orders are issued for gaining it. Thus the process of going from one intermediate objective to the next is carried out throughout the operation, and orders for accomplishing each partial step only are issued by the patrol leader.

The Mission. The principal and immediate concern of the patrol leader is to be certain that he understands the mission assigned him. Let us assume that the mission as given him is as follows:

To move at 2:45 a. m. tomorrow via U. S. Highway No. 30, and reconnoiter the vicinity of Blanktown. The information that is particularly desired is as follows. Are there any hostile forces, the size of a troop or larger, west of the line State Highway No. 140, the road just west of York route, between Newell and Vale? If so, what is their strength, composition, and if moving, in what direction and by what routes? Positive identifications required."

The patrol leader turns this problem over in his mind, and then transposes

it into his own words. His concept of the above order would be probably as follows:

"I am to leave camp tomorrow morning at quarter to three and go to Blanktown on U. S. Highway No. 30. I am to find out if an enemy troop or larger force is between Newell and Vale and the next road west of my route. If I see any enemy forces that large, I must report, by message, their strength, location and direction of movement. I must also find out what organization they are."

By repeating this order to the officer issuing it, a check is obtained as to whether it is properly understood.

Route. A general route to be followed by a patrol is ordinarily given in the initial orders sending the patrol on its mission. Patrol leaders, however, are given considerable latitude as to the actual route followed. Circumstances may arise making it impracticable to follow the general route assigned. For example, a strong enemy force may be marching on an assigned road, in which case, after notifying higher authorities of this fact by messenger, the patrol leader is entirely justified in seeking another route upon which to pursue his mission. As a general rule, however, an assigned route should be adhered to as closely as conditions permit.

If the original route is left by the patrol, for good reason, it should be sought again as soon as it is reasonably safe to do so, provided, of course, the accomplishment of the mission will be furthered by so doing.

When a route is not indicated by higher authority, the patrol leader, after a careful map study, must select one for himself.

The route so selected should have the following general characteristics:

(a) It should be the shortest and most direct to the objective.
(b) It should (in enemy territory) avoid large towns or communities.
(c) It should be easy to follow.
(d) It should afford reasonable concealment both from ground and air observation.
(e) It should afford good observation of the terrain over which the patrol is to pass.

It may not be possible to select a route which fulfills all the conditions enumerated. However, a route containing as many as possible is sought.

Duration of a Patrol Mission.

Depending upon the assigned mission, cavalry patrols may be detached from the main body for periods up to several days. Usually, however, patrols are relieved every twenty-four hours. A marching column may be apprehensive of a patch of woods a mile or so to the flank. In this case, a small patrol will be sent to investigate these woods, and then to rejoin the column. Here we have an example of a patrol sent out for just a short time. Again a patrol may be sent with the specific purpose of seeking information some 20 or 30 miles or more away. This mission might well require several days to accomplish.

Equipment of a Patrol.

Cavalry units on patrol normally carry their full field equipment. It may be advisable, however, to leave behind with the troop, shelter-halves, pins and poles, toilet articles and extra clothing. This will relieve the horse of some weight and will cause members of the patrol no additional hardship, especially if the weather is at all favorable. Equipment thus left behind is cared for by the supply sergeant and is carried forward in troop transportation. In any event it is extremely important that a man carry his arms, ammunition and a filled canteen.

Assuming that the patrol leaves on a mission in the early morning hours, men and animals will have had their breakfast. A cooked lunch is carried in

the saddle-bags and sufficient grain for the rest of the day is carried in the grain bag. Each man, in addition, habitually carries one reserve ration. This latter contains ground coffee, sugar, sweet chocolate, hard bread and tinned meat, done up in convenient pasteboard container. It is sufficient for three meals. Reserve rations are for use in an emergency, and then only upon direction of higher authority. Patrols going on an extended mission should be authorized to make use of this reserve ration. They also should be granted permission to requisition supplies such as food and forage, and, if in enemy territory, to commandeer transportation. Impressed motor transportation may prove of inestimable value for the prompt transmission of information.

Equipment taken on patrol should all be in excellent condition. In order to determine this fact a careful inspection should be made by the patrol leader before starting. If practicable worn leather parts liable to give way should be replaced.

Equipment of Patrol Leader. The leader, in addition to the equipment carried by other members of his patrol, should carry:

Compass.
Watch.
Field-glasses.
Map or sketch.
Field message book.
Knife.
Pencils.
Wire-cutters.

Action of the Patrol Leader Before the Start.

Upon receipt of warning instructions, or of order, if no warning instructions are issued, he secures horses and men for patrol.

He inspects horses to see that they are in fit condition and well shod; has horseshoer tighten loose shoes if there are any; has horses watered and, if time permits, fed before starting.

Men are instructed as to what rations (cooked meals, reserve) are to be taken; to fill canteens with water or coffee; to secure extra feed of grain, if such is to be carried. Usually, not more than one cooked ration and one reserve ration should be taken, nor more than one full feed of grain, because to do so would overburden the horses. If a patrol must remain out several days, it must live off the country when its own food runs out.

If the patrol is to return to the organization that night, each man may be instructed to leave his extra clothing, toilet articles, and other equipment, tied in a bundle in the shelter-half, with the troop supply sergeant. This might be done if the troop remains in camp or if wagons accompany the troop on the march. Also, circumstances may require that patrols carry nothing but a minimum of forage and rations, when great distances are to be covered rapidly. In any event each man must have his arms, necessary ammunition, and filled canteen.

Noncommissioned officers will have *wire cutters, message blanks, pencil, compass;* also *field glasses,* if practicable. If he has other noncommissioned officers under him, the patrol leader secures maps for them or makes tracings of his. Such tracings may show only roads, streams, woods, and higher hills.

The patrol leader then sees that his own kit is complete; that he has his message blanks, pencil, watch, compass, field glasses, and map.

The patrol leader directs his men when and where to assemble.

At assembly time the patrol is inspected by the leader to see that the articles of equipment as ordered are carried, but none other. He notes that equipment is in such condition and so disposed that it will not glisten or rattle.

When the officer who sends out the patrol gives his orders in the presence

of the assembled patrol, it is unnecessary for the patrol leader to repeat these orders. Otherwise the patrol leader should issue an oral order to the members of his patrol.

In all cases, however, the entire situation relating to the enemy and the situation relating to our own troops so far as the patrol should know it, the mission, when and where to return, and place for sending messages, must be explained and made perfectly clear to the whole patrol.

d. If the patrol, on leaving camp, passes through the line of outposts, the patrol leader informs the nearest support and outguard commanders of route he will take and where and by what route he expects to return. He also gets from the outpost troops all information gathered by them concerning the enemy and friendly patrols.

Order of Patrol Leader to Members of the Patrol. The patrol leader must now, if he has not already done so, issue detailed instructions for the march of his patrol, including:

Formation of patrol.
Designation of second in command.
Designation of men for near-by reconnaissance.
Instructions to guides and attached scouts.
First objective.
First assembly point.

Control. Signals, Commands.

Signals are habitually employed by the patrol leader in controlling the actions of his patrol and by the members in transmitting information to the leader. They are essential when the presence of the enemy makes spoken commands dangerous, and convenient when the members of the patrol are separated by the maximum distances. The authorized arm-and-hand signals (see course in Cavalry Drill) are employed, and a limited number of special signals may be agreed upon and rehearsed before starting out.

Formation of Patrol.

Upon crossing the outpost line, or earlier if desirable, so as to avoid observation under fire, the leader adopts a suitable patrol formation. The chief consideration is that he shall be able to control the patrol. Within this limitation any simple formation that will accomplish the mission, prevent surprise, and provide reasonable safety from fire is satisfactory.

The formations shown in Plate 25 are suggested, not as fixed rules, but as formations from which variations may be made to meet existing conditions.

Troopers of a pair may ride abreast or in a staggered formation with intervals varying from 3 to 10 yards. On a road they usually ride well separated or on opposite sides.

Intervals and distances depend upon the character of hostile fire expected. If the patrol comes under shell fire, the intervals and distances between individuals should be increased to 25 or 30 yards. At no time, however, must they be so great that the leader loses control.

Distances between successive sets of twos may be shortened, if necessary, to retain control or to shorten the length of column. *The distances given above are necessary only when fire from a flank may be expected.*

In larger patrols, especially, the distances will be the minimum shown in the diagram, or even less.

As the patrol progresses, other formations will suggest themselves to the resourceful patrol leader, such as a column of troopers when such a formation increases the value of cover, or a line of foragers when the patrol must get ahead into a wood, village, mouth of a defile, or to a ridge crest, and he adopts this formation to avoid or reduce losses.

For patrols up to the size of a squad the patrol leader will usually be

in front. In this position he controls the patrol largely by example and signals. He is first to see tracks, other signs, the enemy, first to emerge from woods, first to look over a ridge, first to meet and question travelers. He is not subject to the delay that would result from having to ride forward to

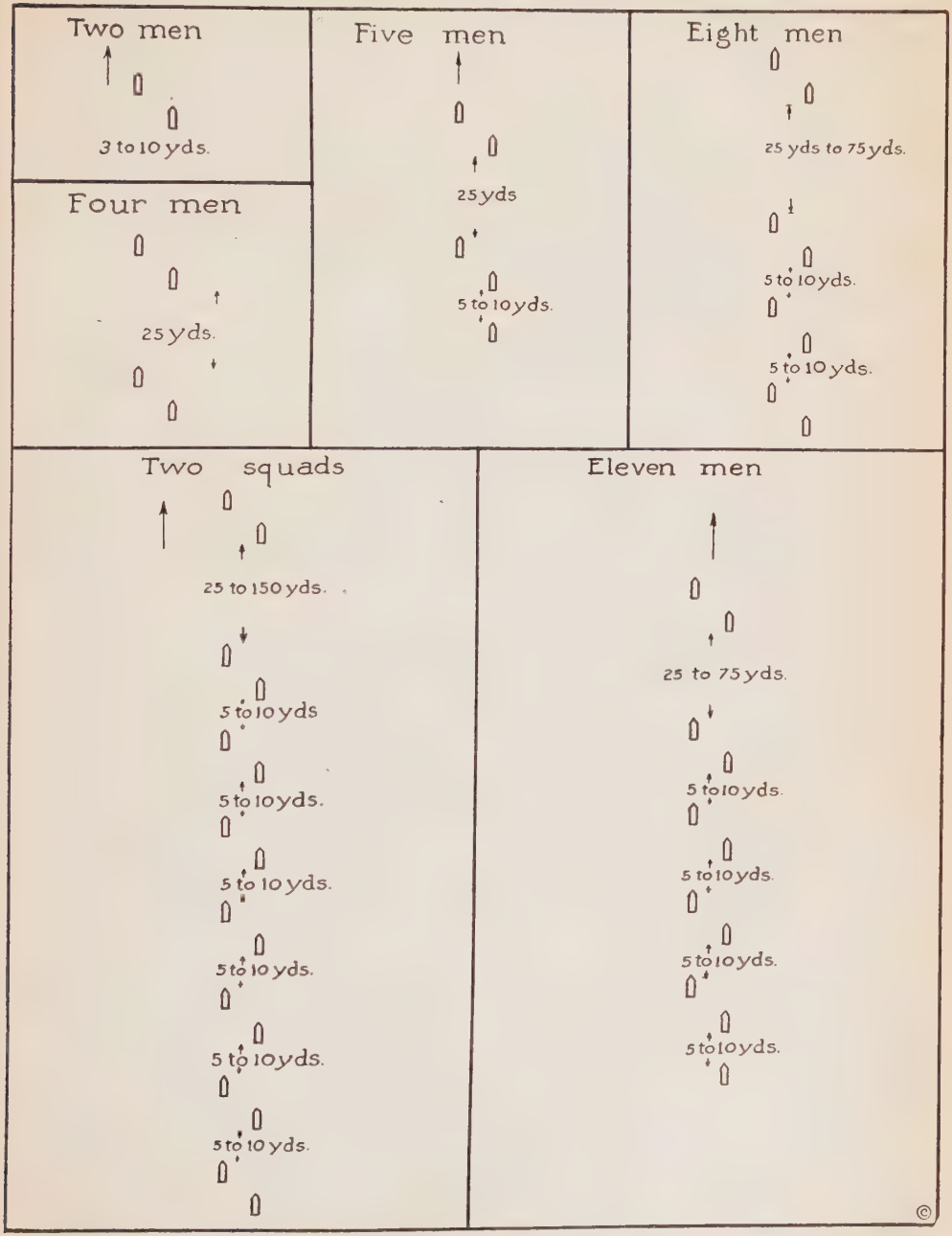


PLATE 25. Formations of Small Patrols.

observe and to get a report from another, and he is not influenced by the opinions and statements of others. An increase or decrease of gait, a halt, a dash into the brush should be enough to cause the patrol to follow his actions.

In larger patrols circumstances must decide whether the patrol leader shall be with the point or the main body.

For a patrol larger than two squads the distances between point and main body should be increased. As a general rule the leader of such a patrol would march with the main body. A point of from two to four men, one of them an experienced noncommissioned officer who is well informed as to the purpose of the patrol, precedes the main body by a distance varying from 100 to 400 yards.

A get-away man is not prescribed. In case of combat the patrol generally fights mounted and the entire patrol fights. A successful encounter increases the probability of getting information back. Immediate control by the leader is essential. For these reasons no member should be so disposed that he may be lost easily in case of a sudden dash forward, nor is any man designated to stay out of the fight for the purpose of getting away with information. If the patrol is overwhelmed, the escape of one or two men is as probable as the safe return of a get-away man.

Conduct of the Patrol.

Before starting, the patrol leader orders certain troopers to observe and be prepared to reconnoiter to the right; other troopers are assigned similar duties to the left.

This assignment of duties having been made, the patrol leader need give no further instructions for reconnaissance, beyond pointing to the locality which he desires reconnoitered, if his men are well trained. He needs only to look back toward the patrol and point to the house, hill, or woods that he wishes investigated, and the previously designated pair moves out. However, where a misunderstanding could arise he should call the men to him and give them careful instructions.

A patrol leader should not send men on missions or reconnaissance too far away from the patrol. Three hundred yards is the maximum, when the entire patrol consists of a squad. A patrol of less than six men does not ordinarily detach men for flank reconnaissance. For patrols the size of a platoon these reconnoitering groups, for flank reconnaissance farther than 300 yards, should consist of more than two men, perhaps a half squad, or, rarely, a whole squad. These parties may go out to 500 or even 600 yards. For any patrol when the point is too distant to be covered by flankers the entire patrol goes there. Flankers should be given an opportunity to exercise their judgment and if, having been sent to a hill for observation, the flanking group before returning to the patrol visits, for example, a farm and a clump of trees not farther from the line of march than the patrol should go, the leader should be commended for exercising good judgment.

When enroute the patrol leader observes in all directions, as does the man nearest to the leader. The leading troopers of the main part of the patrol watch the leader for signals and observe particularly to the right, or left, as previously ordered. The last man or two men in the column look frequently to the rear for the enemy and to the front for signals. The second in command of a small patrol rides at the rear and does not do flank reconnaissance.

The patrol moves without noise. Necessary conversation only is carried on in a low tone. A whistle with the lips should be sufficient to attract attention.

It would be a mistake for the patrol leader to attempt to improvise, at the last moment, an elaborate system of signals to cover all possible emergencies that might arise. The men would surely forget them. The signals in ordinary use are sufficient.

The patrol and the parts thereof proceed by bounds. When crossing a ravine, stream, or narrow valley the two leading men should be on the farther side before the main body crosses. When approaching a crest the leading men

should increase the gait and get to the crest well ahead of the rest of the patrol. Before dismounting they should peer cautiously over the top to make sure that the enemy is not in the immediate vicinity. They avoid exposing themselves.

Dismounted observations are more accurate than mounted ones. Therefore if a rapid survey is insufficient, one or both men dismount. They examine the ground in front, probably with field glasses, looking across the valley in front and for any movement or signs of an enemy in a wood or on a hill top which they must approach. These observations may be made while the rest of the patrol is closing up. The patrol then proceeds to the next vantage point where the procedure is duplicated. The same procedure is carried out at the edge of a wood or thicket. A patrol moves under cover as much as possible, utilizing all shadows cast by rows of trees, hedges, etc. It crosses open spaces at increased gaits and may move slowly under cover. When practicable, it avoids raising dust by marching on grass or damp ground. At night, when sounds are plainly heard, there may be times when it will be necessary that the patrol march on soft ground or muffle the horses' feet.

A patrol stops frequently to observe the surrounding country from high hills, edges of woods, etc., and then proceeds at an increased gait.
During halts it establishes a march outpost.

A patrol should keep out of inclosures.

Villages not entered should be avoided completely; if entered, the patrol, on leaving, may start in a false direction and change direction when out of sight.

These precautions are fatiguing and are not always necessary. But cavalry soldiers should be thoroughly instructed in them, so that they may use such precautions as may be feasible or necessary. They are not given with the idea of instilling undue caution into the patrols but rather with the idea of enabling them to accomplish their missions.

An assembly point, for use in case the patrol is dispersed, should be designated by the patrol leader. After each 3 or 4 miles' progress a new assembly point should be ordered. Such a point might be a clump of trees in the vicinity of a prominent natural feature (such as a hill) which men could see a long way off. If the patrol is suddenly and unexpectedly attacked and, after a fight, is scattered, each man will probably have to look out for himself, returning as soon as possible to the rendezvous designated by the patrol leader. The patrol then, reunited, continues on its mission.

A patrol, when near the enemy, operates preferably on the side roads. Large bodies use main roads; the patrol may therefore expect that the enemy will use main roads. It can better observe from side roads with much less danger of being discovered.

A patrol must not jeopardize its safety by permitting civilians to pass or precede it. They should be questioned and all information possible obtained from them. The patrol, however, never gives them any information concering its own movements or the movements of friendly troops.

Patrols have authority in time of war to arrest civilians, to impress guides and remounts, to seize telegrams and mail matter, to destroy telegraph and telephone lines and instruments when instructed to do so—in short to do all things demanded by military necessity, but no more.

Wounded and prisoners must be disposed of according to circumstances.

If a house is near by, a conveyance can probably be secured and wounded men sent back in it. A litter may be improvised and a wounded soldier carried by prisoners.

Prisoners may be tied on their horses or made to walk. Usually a patrol will not burden itself with prisoners unless they are important on account of rank or of some special information they may possess; or unless the safety of the patrol will be too much compromised by releasing them.

The patrol must not waste time. Its gait is determined by the mission and the proximity of the enemy.

The strength of the horses must be conserved. Skillful marching methods must be used to cover the required distances at rates that may be demanded by the circumstances. The proper care of horses becomes a very important feature of the work involved. When the work is hard, horses should be fed and watered at every opportunity. When the situation permits it to be done without danger, the men should dismount and lead instead of riding at a walk. Then, when mounted, the patrol can move at a trot if necessary. But no rigid rules can be prescribed other than those given in the Training Regulations on the subject of marching.

Men should not be sent to every little hill or house on the flank of the line of march.

The patrol leader should not, as a rule, voluntarily break up his patrol into two or more parts. The officer who sent out the patrol specified its strength; he believed that a certain number of men were necessary to enable the patrol to accomplish its mission. For the leader of the patrol to split his patrol into two or more parts is an unwarranted assumption that he is a better judge of what is the proper strength than his commander. Furthermore, when the patrol leader splits up his patrol into two or more patrols, he is taking away fighting strength that he may need very badly before he has finished his job. Dispersion is bad when a patrol must fight. The men must remain together.

Friendly and Hostile Aircraft.

The *air service* and reconnoitering patrols may cooperate in obtaining information. The former may detect movement at a certain place or have its suspicions aroused as to some locality. By use of a rocket, bomb, or dropped message it guides the patrol, which then obtains the complete information which the plane could not get.

The air service can not often obtain negative information. A wood or village may or may not be occupied by the enemy. The patrol investigates, and if the place be occupied it falls back. If it be free of the enemy, the patrol advances beyond. In either case it then displays individual markers. The location of the patrol indicates to the plane whether the place is occupied.

By prearrangement the patrol may convey information to the plane by the formation which it assumes, such as a circle, cross, or letter of the alphabet. Both patrol leaders and airplane observers should have diagrams showing the formations and their meanings.

In the case of a large mounted patrol arrangements may be made for panel communication with airplanes. With panels the conventional code may be used, but prearranged signals for each particular case will usually give the best results.

In all cases the aerial observer who will work in conjunction with the patrol must be given all possible information in advance as to the routes to be followed and missions to be accomplished. The observer can not always pick up signals which have not been prearranged.

When the hostile air service is active in searching an area, patrols therein will have to govern their actions accordingly. When the area has formerly been free from patrols, their presence, when noted by the hostile air service, may convey important information to the enemy. It will then become necessary for patrols to avoid being observed. When an airplane approaches, a patrol should take position at once under trees, in buildings or in the shade of buildings, among scrub, or at any other place where the troopers can not be seen. If absolutely in the open, the patrol scatters, the troopers dismount and remain motionless; geometric formations that might indicate an organized body are

avoided. If under trees or other equally good concealment, the patrol may continue to advance.

When a patrol must get ahead regardless of enemy airplanes it may advance by trooper at great distances, or the leader may disperse the troopers, who proceed by devious routes to a designated assembly point. Each trooper, watching for opportunities when he thinks he will not be discovered, dashes forward from cover to cover. In no case should the dispersion be so great that the patrol leader can not quickly assemble the patrol.

As an extreme measure the leader may leave his horses and one or two troopers in concealment while he proceeds on foot with the remainder of the patrol to accomplish the mission.

When uncertain whether a plane is hostile or friendly, the patrol should assume it to be hostile and conceal itself.

Only when patrols have been discovered do they fire on hostile planes.

When an enemy balloon is up, a patrol can generally avoid observation by keeping a mask, such as a hill, between itself and the balloon.

Observation. A patrol observes everything. Its safety depends upon observation. Horse tracks, abandoned clothing or equipment, dead fires, all signs of recent occupation may be vitally important. Each member of a patrol must look about him to see features of the country as he passes them and to add to the general observation of the leader himself. A soldier must not be content blindly to follow his leader without seeing where he is going and what is happening. Any indication of the enemy or any other important discovery is reported to the leader at once.

All men must note carefully the route followed and the compass direction in which they are going, so that, if compelled to scatter, each man can find his way back alone. The patrol should be frequently halted and the men required to look back over the route they have come, because things look different when seen from opposite directions.

Combat.

This subject must be considered both from the standpoint of the higher command and of the patrol leader.

The officer sending out the patrol should indicate the general line of conduct to pursue in the face of the enemy or when hostile patrols are met.

If the higher commander does not wish to provoke the enemy to activity, or desires to keep the enemy in ignorance of the presence of his force, he should direct the patrols to resort to concealment, to obtain their information and return without allowing themselves to be discovered, and to avoid combat except in self-defense or when it is necessary to accomplish the mission.

On the other hand he may direct the patrols to engage in combat:

To prevent enemy patrols from gaining information.

To prevent enemy patrols from getting in rear of the commander's patrols and thus endangering the messenger service.

To obtain prisoners.

To raise the morale of his men and lower that of the enemy.

When there is any doubt he will order combat.

The patrol leader in any given case will have certain decisions to make although his general line of action may have been indicated to him.

If concealment is ordered, is this a case where combat is necessary in self-defense or for the purpose of accomplishing the mission?

Assume that the patrol encounters *hostile cavalry* at very close distance, both parties being surprised. There is no time for concealment, therefore the patrol makes a pistol attack at once. Surprise, audacity, and rapid movement should bring success against a force of about equal size. Even against a greatly superior force such action may enable the patrol leader to throw it into con-

fusion, inflict losses, and get away. Where the noise of firing should be avoided it would be better to execute the attack with the saber.

Assume that the patrol has accomplished its mission and is returning home with valuable information. It encounters *hostile infantry*. Ordinarly the mobility of the patrol enables it to avoid infantry, but in this case the infantry blocks the way. The patrol has not been discovered and therefore has the initiative. Whatever action it takes against the enemy will be in the nature of a surprise. A pistol charge through the enemy is the solution. The disorder created by the patrol will be so great that shots fired at it after it has passed will probably be ineffective. Under no circumstances, however, can the patrol charge superior numbers of dismounted troops in position, all ready to receive the charge and with a field of fire sufficiently great and level for its maximum effect. The *element of surprise* is the determining factor, and the patrol, unless considerably superior in number or morale, must be able to get within 100 yards of the enemy line before being discovered.

If combat is ordered, is this a situation which promises success or is concealment or flight necessary?

The commander does not expect the patrol to destroy itself in futile combat. The patrol leader must make an estimate of the situation and consider his chances of success. He should never hesitate to attack equal numbers and may attack greatly superior numbers if he possesses certain advantages such as surprise, favorable terrain, or an unprepared enemy. When in doubt the patrol leader adopts the bolder course.

If he fights, shall it be mounted or dismounted?

When surprised, there is no question; the patrol attacks mounted.

If the leader has time for observation and reflection, he may prepare a deliberate attack. This will usually take the form of a mounted pistol or saber attack. If he attacks dismounted, the enemy may succeed in getting away without loss.

For a mounted patrol to get into a prolonged fire fight with a superior force of either cavalry or infantry is almost equivalent to surrender. If a strong hostile force has discovered the presence of the patrol in a wood, let us say, and surrounds the wood to capture the patrol, the patrol should not ordinarily dismount and begin firing. That is the beginning of the end. If darkness is coming on there might be a chance of holding off the enemy by dismounted fire and then making a mounted charge through his lines after dark. But the enemy will press the attack. The patrol can do one of two things; surrender, or charge through the lines. In the first case he has no chance; in the second he has. He should take the chance and charge through.

Usually a mounted patrol has a far better chance of success when it fights mounted. When cavalry dismounts it sacrifices its greatest advantage, its mobility. The leader therefore asks himself if it is possible to fight mounted? If he decides it is not, then, and not till then, does he dismount.

The patrol never dismounts if it can possibly accomplish its mission mounted.

Combat and aggressiveness should not be confused. The patrol leader will be bold and aggressive in his determination to accomplish his mission even though concealment rather than combat has been indicated to him.

Night Dispositions.

A patrol may at times be called upon to spend the night at a distance from supporting troops, either because its mission demands such action or because it is unable to make its way back. In this case it places its greatest reliance for safety upon *concealment*.

Animals should be watered while there is still daylight. As darkness approaches the leader should lay his course so as to avoid observation by enemy troops or by inhabitants, especially if the latter be hostile. At a favorable op-

portunity the patrol should take refuge where it will not be seen. Usually this will be in a wood or thicket and at such a distance from roads or trails that the patrol will not be seen or heard by passers-by. One man should be posted as sentinel a short distance from the group where he may see and listen without being disturbed by the noises of the men and horses of the patrol.

The animals should be fed their grain and, if the leader is confident that the location of the patrol is not known, they may be unsaddled, groomed, and thus refreshed for further exertions. The men then prepare and eat supper. If the patrol is well concealed, fires may be built, but they should be kept small so that neither the blaze nor the smoke may attract attention.

If the patrol is well concealed and comfortable and is confident it has not been observed, it may remain at this place for the night; otherwise it will be well for it to shift its position. A few hundred yards may suffice, though a greater distance is more desirable.

For the permanent night disposition horses are tied in a group to a temporary picket line, a fence, or trees. They should be near enough to each other to prevent restlessness and the tendency to whinny, but those that are known to have an antipathy for each other should be separated to prevent kicking and squealing. Any long forage that the patrol has been able to gather is then fed. Bridles and saddles may be replaced on the horses if the enemy is very close and the patrol is liable to surprise or very hasty action. If it is possible for the animals to be free of equipment throughout the night, they will be in better condition for the exertions of the following day.

Provision is made to maintain a sentinel or double sentinel post throughout the night. As the direction of approach of the enemy probably can not be foreseen, the post will be located in the immediate vicinity of the group, so that observation may be maintained in all directions.

Men not on post should get the best possible rest. However, they should not remove their clothing, but should sleep on their arms. They should know where their horses are and be ready for instant combat or movement.

A patrol should be ready to move at the first signs of day. It will usually be better to wait until daylight to feed the horses and prepare breakfast. If the enemy is known to be about, it may be necessary to move before daylight in order to avoid attracting attention.

A patrol is rarely justified in spending the night in a village, farm, or enclosure. It is a dangerous procedure even in friendly country. Such places attract an enemy's attention and are entered and searched. It may be necessary to go to them for food, but the stay should be short. When moving out it is well to leave in a direction different from that which the patrol intends to follow and, when out of sight, to make a detour and regain the route.

CHAPTER VII.

ILLUSTRATIVE PROBLEM. RECONNAISSANCE PATROL.

Let us assume that at the outbreak of hostilities the cavalry commander is required to obtain early information of the enemy within a certain geographical area. The cavalry commander makes use of both his air and ground forces to accomplish this mission. The air service locates the main enemy concentrations and the general direction of movement of his larger bodies, while mounted patrols collect the more precise and detailed information. We shall now follow one of these patrols on its mission of reconnaissance to discover how it operates under the various situations which arise.

General Situation. A Blue reinforced cavalry brigade (2 regiments of cavalry and a battalion of horse artillery) went into camp at 5:00 PM today The location of the Blue bivouac and of the outpost which protects it is shown on Plate 26.

Instructions to Lieutenant C.

General A, the brigade commander, sends for Lieutenant C, who reports at 8:00 PM, for orders. General A, then issues the following instructions to him:

"Lieutenant C, I am sending you and one squad on a reconnaissance mission, to the high ground just north of the X.Y.Z. R.R.

"Our aviation reports that enemy forces, strength and composition unknown, began arriving by truck at 3:00 PM today in the vicinity of the ridge which I have marked 'J' on this map. (Plate 26). These troops immediately began to dig in. The heavy mist during the day prevented the air service from giving me more accurate information.

"I intend to march at 7:00 AM tomorrow to drive the enemy to the north. The brigade will march on both roads: A-C-O-I and K-L-M-N. A patrol of one squad marches at 2:00 AM via road: K-L-M-N on a similar missions to yours.

"You will leave camp at 2:00 AM and will march to 'J' via the road A-C-O-I. You will determine the following:

1. Is the enemy occupying a position on the ridge 'J'; and, if so, where is his right (west) flank.

2. If you meet any enemy troops the size of a platoon or larger between here and the ridge 'J' you will immediately send me word covering the following points:

   (a) What is their size and composition?

   (b) Their location when you send the message?

   (c) In what direction are they moving?

"The most important part of your mission is to locate the enemy west flank. Unless sooner relieved by me, you will halt tomorrow night along the X.Y.Z. R.R., in the vicinity of your route of march. Another patrol will relieve you there at daylight the next morning.

"You will send me information as follows:

1. Positive or negative information upon reaching the vicinity of Town C.
2. Report of your location for the night.

"You have authority to impress transportation.

"Messages will reach me here in camp until 7:00 AM tomorrow and thereafter at the head of the main body along road A-C-O-I. Here are two maps which have been marked for your use and also a copy of these instructions in

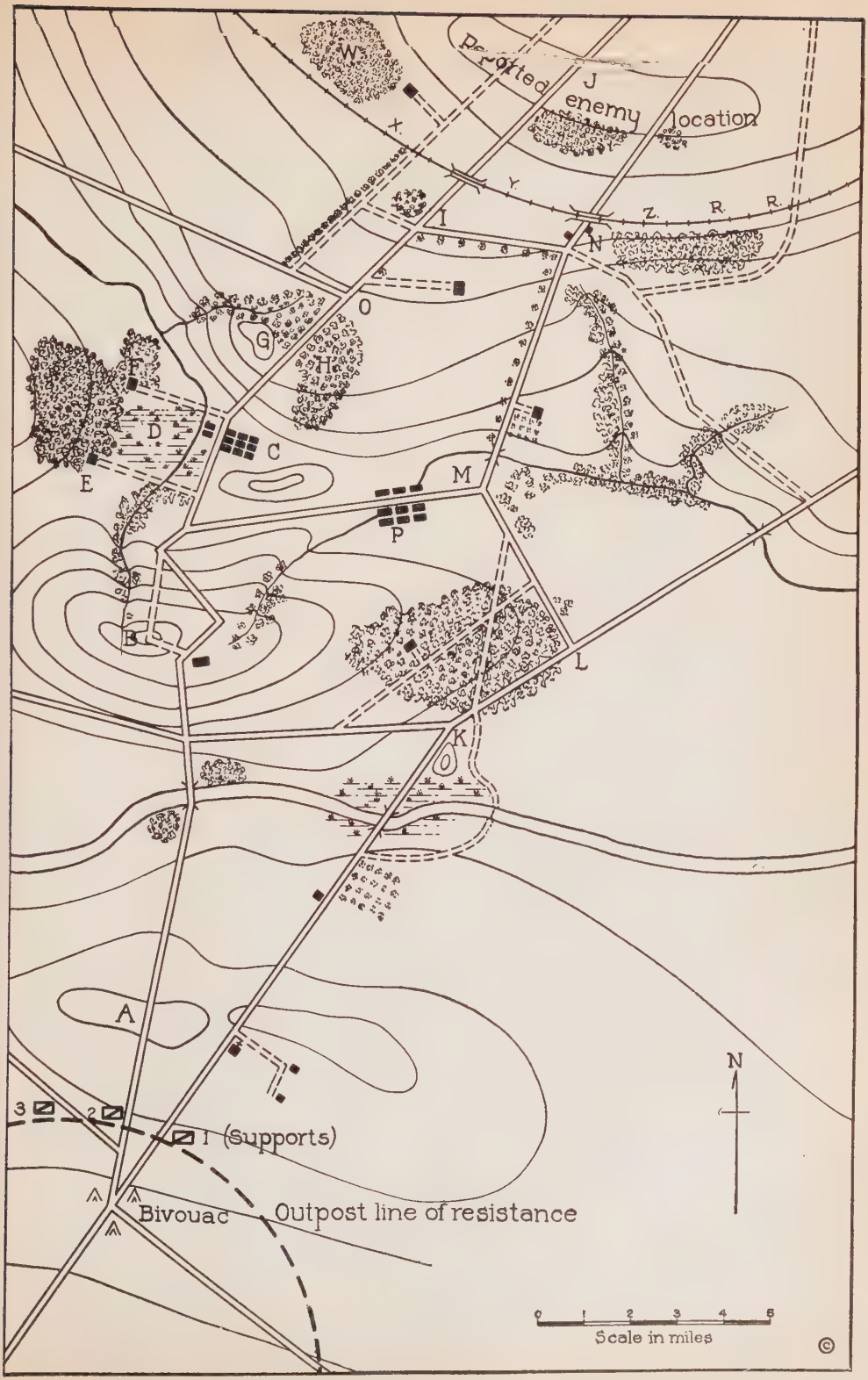


PLATE 26. Map Shown Lieutenant C by the Brigade Commander.

writing. You will notice that paragraph one in your orders has been omitted. Are there any questions?''

Actions of Lieutenant C.

Lieutenant C, upon receiving his instruction, returns to the camp of his troop and reports to his troop commander, informing him of his mission. The troop commander tells Lieutenant C to take a squad from his own platoon as the patrol.

Warning Order. Lieutenant C then sends for the 1st Squad, which he selects to accompany him. When the latter has reported he issues the following warning order:

''This squad goes with me on patrol tomorrow. We leave camp at 2:00 AM. Equipment, full pack and two feeds of grain. Be sure your belts are filled with ammunition. Breakfast at 1:30 AM. The cook will issue each of you one cooked ration at that time and you will fill your canteens with hot black coffee. Examine your equipment to see if it is in good shape. Report anything that is not in good order, to your squad leader. Go to bed early. You will be called at 1:15 AM. Report to me at the picket line at 1:45 AM ready to saddle. I shall issue further orders in the morning.''

Inspection of Horses. Lieutenant C, taking with him the squad leader of the 1st Squad, goes to the picket line. Here he carefully inspects each horse of the 1st Squad. Horses that need shoeing are sent to the horseshoer at once. Any horse that appears unfit is replaced. Any animal that neighs excessively is considered unfit for work of this nature and is rejected. Animals of very light color or unusual appearance are also rejected. While at the picket line, Lieutenant C directs the picket line guard to water and feed the horses of his patrol at 1:00 AM.

Instructions to Mess Sergeant. Lieutenant C then returns to the troop and directs the mess sergeant to have breakfast for his patrol at 1:30 AM, and a lunch ready for issue at the same time. He directs the cook to awaken him and the squad leader of the 1st Squad at 1:15 AM.

Personal Equipment. Lieutenant C repairs to his own tent and checks his own equipment to assure himself that he has message blanks, pencils, compass, knife, watch, field glasses, map and wire cutters. He also notifies his orderly to have his horse saddled and to be ready to accompany him by 1:45 AM. He then looks over his map and marks out the route upon it and upon the one he intends to give the corporal.

The Start. At 1:15 AM, Lieutenant C is awakened by the cook who informs him that he has just wakened the squad leader. Lieutenant C goes to the kitchen, eats his breakfast, gets his own lunch, fills his canteen, and sees that each man does likewise. He then goes to the picket line and superintends the brushing off and saddling of all the animals of his patrol. He checks to see that they have been watered and fed and that no horse is lame or has been seriously kicked during the night. He then causes the squad to mount and conducts them in column of twos to the command post of Support No. 2 of the outpost.

Actions at the Outpost Line of Resistance. Upon reaching the outpost line, Lieutenant C causes the squad to dismount. He then seeks the commander of Support No. 2, explains his mission to him, and asks whether the support commander has any information to give him. Upon receiving all available information, Lieutenant C rejoins his patrol.

Orders at the Outpost Line. Lieutenant C assembles his patrol near the position of the support and issues orders as follows:

''Enemy forces have been reported here at 'J' about 26 miles northeast of here. (Showing them the map Plate 26). Our main body moves north today along the road we will follow (pointing out on the map the road A-C-O-I). In case any of you has to bring back a message, remember you will find the main

body on this road. We move on the road we are now on to 'J', to find out whether the enemy is holding a position there, and if so, just how far west his line goes.

"First two men in the column will ride with me, the remainder of the squad will follow at 25 yards in column of twos, with about 5 yards between sets of twos.

"Corporal Blank, you are second in command, and will ride at the tail of the column.

"The second set of twos will perform all flank reconnaissance to the right. The third set of twos will perform all flank reconnaissance to the left. You men will constantly observe in the direction assigned you, and will be prepared to reconnoiter upon my pointing my hand in the desired direction.

"First objective: hill 'A' (pointing).

"Assembly point: where we are now."

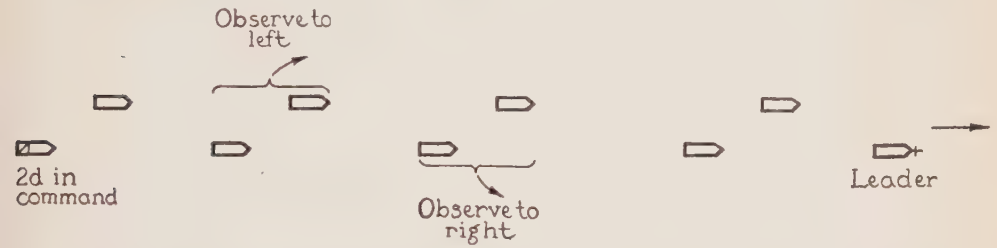


PLATE 27. Formation of the Patrol.

These orders having been given, the patrol moves out in the prescribed formation. (Plate 27).

Conduct of the Patrol.

The First Bound. The movement of a patrol is always by bounds, from one observation point to another. The leader selects and announces an objective before each bound, and designates an assembly point. The patrol moves rapidly during the course of the bound. When each objective is reached the patrol halts, dismounts and rests the animals, while the leader makes a careful survey of the terrain to the front and flanks. It is during this survey that the leader selects the next objective and the next assembly point. An assembly point is announced so that in case the patrol is surprised and scattered by the enemy, each man will have a well defined location to attain. Here the patrol can be reassembled and the mission continued. It is obvious that the assembly point must be some prominent feature, either natural or artificial, which can be easily recognized by each man.

Lieutenant C leads his squad slowly upon leaving camp, walking the first fifteen or twenty minutes. Circulation, which is poor in horses feet, must be gently stimulated before fast gaits can be taken up, otherwise lameness is apt to occur. The patrol marches in a more or less closed up formation at night or at any time when visibility is poor. This precaution insures that the patrol will keep intact and that, if surprised, it can be readily handled for rapid combat.

After leaving our own outpost line the road runs along fairly open and level country for nearly two miles; it then gradually ascends the small hill 'A' (see Plate 26). At the foot of the hill Lieutenant C and the two men with him take up the trot and move toward the crest. Approaching the latter cautiously, Lieutenant C halts when he can just see over the top. He keeps well to the side of the road because a figure appearing in the center of a road on the skyline is easily seen by any watcher below. Lieutenant C searches carefully the terrain to his front and listens intently. When assured that the movement to the next objective will be reasonably safe, Lieutenant C announces the next objective and the next assembly point: "Next objective, patch of woods to left of bridge, on

this side of the river. Assembly point, the hill we are now on.'' The patrol then moves out again in normal formation.

Crossing a Defile. The second objective is gained without mishap. The patrol is assembled under cover of the trees on the near side of the stream just west of the bridge. All men dismount to rest the horses. It is about 3:30 A. M., and still dark. Lieutenant C with one man, moves to a position where he can see the bridge and the patch of woods to the right of it. He carefully searches these two points, as he realizes that the enemy may have detachments watching the stream crossings. Not being able to see anything suspicious, Lieutenant C rejoins the patrol, has it mount, and conducts it to the edge of the trees close to the bridge. Here he issues the following orders:

''Privates Amos and Andy'' (leading two troopers), ''ride across the bridge at a walk. Halt in the edge of those woods, (pointing to woods to right of road), until we join you. Move at raise pistol, and fire to warn us if you run into an enemy patrol.'' The two leading troopers ride safely across the bridge, and move into the edge of woods. Lieutenant C then leads the remainder of the patrol across the stream and announces:

''Next objective: farm on the skyline. Assembly point: these woods at the bridge.''

The March from 3:30 to 5:30 AM. The march continues uneventfully during the remaining hours of darkness. The patrol alternately takes up the walk and the trot, making about four miles an hour. This allows for the time taken up by reconnaissance. When the patrol reaches the cross-roads about a mile north of the bridge, Lieutenant C carefully searches the roadway for evidences of troops that might have passed that way. Finding none, the patrol continues on its mission.

Reaching the darkened farm-house indicated as the patrol objective, the patrol passes by it quietly. Lieutenant C and the two men with him, trot to the crest ahead and search the foreground, while the remainder of the patrol moves at a walk to joint him. He considers for a moment the advisability of taking the entire patrol via the farm road to the top of hill 'B', rejoining the main road at the foot of the hill. He rejects this plan, as it is still dark, and very little could probably be seen from the summit. Were it broad daylight, Lieut. C would undoubtedly have taken this detour. The view from the hilltop might have more than repaid the extra effort in reaching it.

At 5:30 AM the patrol reaches the unimproved road about 2 miles this side of Village 'C' (see Plate 26). Lieutenant C desires to avoid going through the town. His mission requires him to gain the reported enemy location at 'J'. By continuing through the village the patrol might be attacked, captured or dispersed, and the success of the mission be jeopardized thereby. He realizes that it will be dawn in about ten minutes and that if the town were occupied by the enemy, the latter would probably be stirring about that time.

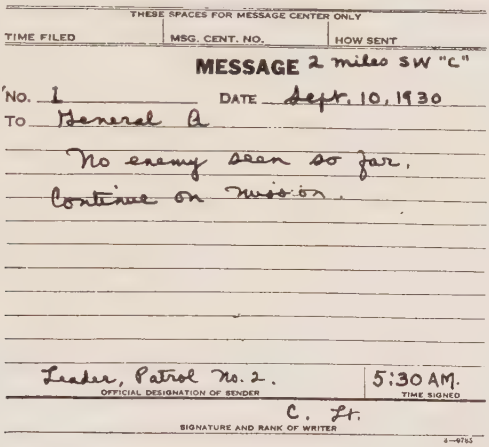
Message to General A. Lieutenant C remembers at this juncture, that he has been ordered by General A to send back positive or negative information from the vicinity of town C. He therefore causes the patrol to take cover in the trees to the left of the road, stations a march outpost of two men, and prepares his message. Lieutenant C then summons two privates who have been at the tail of the patrol during the march and issues the following orders:

''Jones and Smith, you will take this message back to General A. You will find him along the road over which you have just come. Jones you are in charge. Move at 6 miles per hour. When you have delivered the message join your troop in the column. If in danger of capture destroy the message. Listen carefully to the message.'' (See Plate 28.)

Lieutenant C has the messengers repeat the message to him and then sends them on their way. He then assembles the squad, orders that the patrol

formation be taken up with increased distances and moves rapidly over the unimproved road toward 'E'.

Reconnoitering a House. The patrol approaches house 'E' quietly, halts under cover, and observes for signs of the enemy. Lieutenant C desires to interview the farmer in the house to discover how far in the woods the swamp 'D' (see Plate 26), extends; and to learn if there is a trail through the woods. Lieutenant C therefore issues orders for reconnoitering the house. He takes every precaution to avoid surprise or capture. He sends one man to approach the house mounted, from the right rear; two men from the left rear; two men to cover with their rifles the entrances and windows on three sides of the house, one man to hold the five horses and keep watch down the road. Lieutenant C and one man approach the front door at the raise pistol. They note particularly



THESE SPACES FOR MESSAGE CENTER ONLY

TIME FILED | MSG. CENT. NO. | HOW SENT

MESSAGE 2 miles SW "C"

No. 1 DATE Sept. 10, 1930

TO General A

No enemy seen so far,
Continue on mission.

Leader, Patrol No. 2. (OFFICIAL DESIGNATION OF SENDER) 5:30 AM. (TIME SIGNED)

C. Lt. (SIGNATURE AND RANK OF WRITER)

4—9755

PLATE 28. Message Sent by Lieutenant C at 5:30 AM.

that no telephone wires lead from the farmhouse. Had they observed wires they would have cut them before moving to the door. The farmer is an unwilling informant, stating that the woods are swampy all the way through and dangerous for travelers who do not know the way. Lieutenant C could have forced the farmer to lead his patrol through the woods, but decides that course is unnecessary. Covered by his riflemen Lieutenant C and the men with him in the house withdraw to the road. The patrol moves westward until it is out of sight of the farmhouse, when it halts and dismounts.

Marching on a Compass Direction. Lieutenant C takes out his map and orients it. He notices that the swamp, as shown on the map, does not extend far enough west to cut a line drawn between farms 'E' and 'F'. Lieutenant C draws this line on his map, and gets its azimuth by means of his compass. Lieutenant C notes the azimuth, 20 degrees, and measures the distance 'E' to 'F' on his map. This distance is approximately two miles. Lieutenant C figures that he should reach the far side of the woods in about a half hour. The patrol moves carefully forward through the woods, Lieutenant C leading the way, the remainder of the men following in single file with closed distances. In due time the vicinity of farm 'F' is reached. The patrol halts and dismounts while Lieutenant C makes a hasty reconnaissance. He then issues the following instructions:

"We shall avoid the farm 'F,' going through the woods to the west. Objective, edge of woods just north of that small hill (pointing out hill 'G'). Assembly point, farm 'F'. Follow me in column of troopers."

Flank Reconnaissance. Lieutenant C leads the patrol through the woods, and skirting the edge of hill 'G' at an increased gait, reaches the trees beyong.

Lieutenant C as he passes hill 'G' signals the first set of twos behind him to reconnoiter it. The hill is but 200 yards from the route of march, and Lieutenant C believes a good view of the main road can be obtained from the summit. The two designated men make a reconnaissance, rejoin the patrol, and report that they have observed nothing.

Had hill 'G' been farther than 300 yards from the route of march it would not have been proper with a patrol of this size, to send the two troopers to reconnoiter it. The entire patrol should make reconnaissances to objects more distant than 300 yards.

Watering Animals. Advantage is now taken of the nearby creek to water the animals. Many horses will not drink freely very early in the morning, especially if the night has been cold. It is probable that the animals of the patrol were no exceptions to this rule, and that they drank but sparingly at 1:00 A. M. On duty of this kind every opportunity should be seized to water and otherwise care for the horses. Even though animals are warm they can be freely watered, provided the march is immediately resumed.

First Contact with the Enemy. Lieutenant C now announces:

"We move east along bottom of this hill (hill 'G') as far as the main road. Then we move northeast along the edge of these woods. Objective, road-junction at 'O.' Assembly point, hill 'G'."

The patrol moves out as directed. When it nears the main road the leading trooper signals back that he has sighted the enemy. The patrol is halted and Lieutenant C rides forward to the edge of the trees where he can see. Here he observes a squad of enemy cavalry, in patrol formation, moving south along the road. This patrol is about abreast of Lieutenant C and his men. The latter are eager to charge the unsuspecting enemy patrol. Lieutenant C however, signals for quiet, and the hostile squad is permitted to move on unmolested. Lieutenant C's mission requires him to reconnoiter 'J;' his squad has already been depleted by two men (the messengers); and nothing material would be gained even by a successful brush with the enemy. The march is again resumed, the patrol moving in column of troopers along the edge of the woods bordering the road.

Movement to the Railroad. At 'O', Lieutenant C carefully observes down the main road towards 'I', and then changing direction to the west, leads his patrol towards the unimproved road. Again the extended formation is taken up. Reaching the unimproved road, the patrol keeps well to its left-hand side, seeking the cover of the high hedge which parallels it.

The patrol proceeds more cautiously now. It is nearing the reported enemy position, and may expect serious opposition at any moment. Arriving at the railroad right of way, Lieutenant C halts the patrol under cover of the hedge, and makes a careful reconnaissance of his next bound. Knowing that the railroad will probably be watched, he orders each set of twos to cross at the trot to the patch of woods beyond, and there to halt. Ten yards between succeeding sets of twos.

The patrol reaches the woods without opposition, and moves cautiously to its northern edge, keeping well closed up during the movement.

Reconnoitering the Flank. The patrol halts, dismounts, and posts a march outpost. Lieutenant C and Corporal Blank, each with field glasses, carefully search the ridge to their front. Signs of enemy activity are everywhere apparent. Men in undershirts are filling sand-bags; others are digging with pick and shovel; a platoon of dismounted men has moved to the railroad bridge over the main highway and halted. Lieutenant C and the corporal rejoin the patrol, and then marching just inside the north edge of the woods move westward. The patrol continues to march west, halting to reconnoiter at frequent intervals, until the right flank of the enemy position has been definitely located.

Selecting a Location for the Night. During the approach to the railroad Lieutenant C had been looking for a likely site for a camp that night. He decided that the small wooded knoll about one-half mile north of cross-roads 'I' (Plate 26) would be suitable. It would afford him and his men shelter, and would be close to the main highway.

Second Message to General A. Lieutenant C now prepares a second message to General A, in which he reports the exact location of the enemy west flank, and gives his own location for the night. He sends this message back by two messengers, to whom he issues complete instructions for the return trip. He gives the senior messenger of the two a compass and directs him to take the same route the patrol has just passed over, being careful to march with a compass direction of 200 degrees from farm 'F' to farm 'E'.

Actions Until Dark. The patrol secretes itself in the woods 'W' (Plate 26), keeping a safe distance away from the farmhouse in the edge of the clearing. Horses are tied to individual trees and fed their noon meal. Cinchas are loosened on two horses at a time. A march outpost of two men is posted to keep sharp watch in all directions and to prevent the patrol from being surprised. Lieutenant C does not permit the men to build a fire, believing the enemy to be too close to render such a course safe.

Preparations for the Night. At dusk the patrol cautiously approaches the farmhouse at the edge of woods 'W' (Plate 26). The Lieutenant secures food and forage from the farmer, giving receipts for the supplies requisitioned. He questions the farmer, but gets little or no information from him. He informs the latter that the patrol has accomplished its mission, and is now returning to the main command some 20 miles west. In the meantime all the animals of the patrol have been watered by bucket from the farm pump. Upon leaving the farm, the patrol moves due west until it is out of sight of the house, then turns south, and proceeds to the knoll about one-half mile north of cross-roads 'I' (Plate 26). Here the patrol prepares for the night. Horses are again secured to trees, saddles are removed, and a sentinel posted.

Summary.

We have now followed a reconnaissance patrol throughout a normal mission, and we shall leave it in bivouac awaiting relief the following morning. This patrol, in its operations, has exemplified the following:

Movement by bounds, from one objective to another.
Change of formation to meet varying terrain.
Passage of a defile (bridge).
Reconnoitering a house.
Marching through woods with the aid of a compass.
Sending of messages, and the orders to messengers.
Reconnoitering to the flank.
Care of animals.
Night dispositions; changing location just after dusk.

CHAPTER VIII.

MAP EXERCISE. RECONNAISSANCE PATROL.

General Situation. The same general situation outlined above applies to this exercise. The brigade commander dispatches a patrol of one squad under Lieutenant A, directs it to move over the general route, K-L-M-N, and entrusts it with a mission similar to the one given Lieutenant C's patrol. (Plate 26).

Instructions to Lieutenant A.

The following is a brief summary of the instructions given by Brigadier General A, commanding the brigade, to Lieutenant A:

Enemy Information. The enemy has been reported, by our air service, to be taking up a position along the ridge just north of the X.Y.Z. Railroad.

Patrol Mission. To proceed via road K-L-M-N to 'J', to determine the exact location of the enemy left (east) flank. Unless sooner relieved, to halt for the night along the X. Y. Z. Railroad close to its line of march. The patrol, in any event, to be relieved by daylight the following morning.

Reports Required. The patrol to report any hostile force the size of a platoon or larger met en route, giving its size, composition, direction of movement, and exact location when sighted. A report of positive or negative information to be made upon reaching the vicinity of road junction 'M'. In case the patrol is not relieved before nightfall, a report as to its night location to be made.

Information of Our Forces. The brigade marches tomorrow morning at 7:00 AM, using both roads A-C-O-I, and K-L-M-N. The brigade commander moves by the western road.

Brigade message centers will be established as follows:

(1). In present camp until 7:00 AM.
(2). Bridge five miles north of camp, from 8:00-8:30 A. M.
(3). Road bend, 1½ miles north of hill 'B', from 9:00-9:30 A. M.
(4). Two miles north-east of crossroads 'C', from 10:00-10:30 A. M.
(5). Cross-roads 'I', from 11:00-11:30 A. M.

Conduct of the Patrol.

Situation 1. (The Start). Lieutenant A carefully prepares for the next day's undertaking, and commences the march on time. Before leaving the outpost line of resistance, Lieutenant A explains fully to the patrol the nature of the mission they are about to undertake, indicates the route, destination, information requested and where it is to be sent, and announces the first objective and the assembly point.

Requirement. The objective and assembly point selected by Lieutenant A.

Solution. Objective: Top of ridge one mile north of church to the front. Assembly Point: Location of support No. 1.

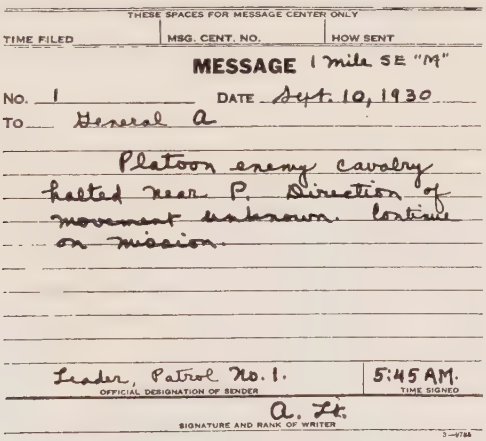
Discussion. The church itself was not selected as an objective because a patrol normally bounds from one observation point to another. While it is true that it will still be dark when the patrol reaches the ridge, it is believed that some view may be gained over the barren stretch extending beyond the ridge towards the river. At any event a listener near the ridge-top would hear sounds coming from the river much more readily than one stationed at the church. A patrol at night uses its ears as much as it does its eyes. The assembly point selected is one which the members of the patrol could easily find in case they become scattered.

Situation 2. The patrol bounds from the ridge to the road-junction about three-quarters of a mile southwest of the bridge crossing the river. Here the patrol halts while Lieutenant A observes the terrain and consults his map. He notices that a well-used unimproved road crosses the stream by means of a ford, and joints the main highway near 'K'. The main highway itself leads directly to 'K' across the stream and past a swamp which borders each side of the road. Lieutenant A now considers the route to take on the next bound.

Requirement. The route selected for the next bound, and the reasons therefor.

Solution. Lieutenant A decides to take the unimproved road to 'K'.

Discussion. The main highway is shorter and more direct than the other one. It, however, for about a mile or so, is nothing but a narrow causeway across a swamp. To be surprised by the enemy while on his causeway would be disastrous to any patrol. The crossing of an unknown ford during the



THESE SPACES FOR MESSAGE CENTER ONLY

TIME FILED | MSG. CENT. NO. | HOW SENT

MESSAGE 1 mile SE "M"

NO. 1 DATE Sept. 10, 1930

TO General A

Platoon enemy cavalry
halted near P. Direction of
movement unknown. Continue
on mission.

Leader, Patrol No. 1. | 5:45 AM.
OFFICIAL DESIGNATION OF SENDER | TIME SIGNED

A. Lt.
SIGNATURE AND RANK OF WRITER

3—9788

PLATE 29. Message Sent by Lieutenant A at 5:45 AM.

dark may well prove a hazardous undertaking. Still the fact that the road leading to the ford appears to be a much travelled one, influences the Lieutenant to believe that the crossing will be safe. He therefore chooses the latter course.

Situation 3. When the patrol arrives at the road-crossing one-half mile northeast of 'K', Lieutenant A is confronted by a decision as to whether to continue on the unimproved road towards 'M', or to move via the highway K-L-M, his assigned route.

Requirement. Decision of Lieutenant A at this point.

Solution. Lieutenant A decides to take the unimproved road.

Discussion. Although a general route is normally given a patrol, the leader of the latter is allowed considerable latitude as to the actual route he selects. Main highways are usually followed by large bodies of troops, and for this reason a patrol often gains time and insures a fair degree of safety for itself by taking side roads, and thus avoiding enemy troop movements. In this case the unimproved road is shorter than the highway, and from the map, appears direct. Lieutenant A determines the azimuth of this farm road, and uses it as a check to keep from going astray during the movement to the main road L-M.

Situation 4. (Daylight Reconnaissance. Use of Glasses). The patrol reaches the road junction a mile southeast of 'M' shortly after daylight. Here, under cover of the trees at the road-fork, the patrol halts and dismounts while Lieutenant A makes an observation with his glasses.

Requirement. Method of searching terrain with field-glasses.

Solution. Lieutenant A searches the terrain rapidly without using his glasses. Then, beginning at the right edge of the section of terrain Lieutenant A elects to observe, he examines carefully with his glasses a narrow strip close to him, sweeping his glasses slowly to the left. He then shifts his glasses to the right, and with as much care searches from right to left, a second narrow strip overlapping the first. Lieutenant A continues to search in this manner a succession of narrow overlapping strips, until he is satisfied with his reconnaissance.

Discussion. The method of searching ground just described makes it reasonably sure that nothing of importance will be overlooked. The use of high-powered glasses is a severe strain on the eyes, which become easily fatigued. By shifting the glasses completely to the right after each sweep to the left, the eyes of the observer, in a small measure, are rested.

Situation 5. Lieutenant A, through his glasses, observes the following:

In the orchard northeast of the town 'P', about 20 saddled horses, held by horse-holders. Two small fires burning along the roadside, around which men are grouped. Two mounted men on the highway about one-half mile west of 'P,' and two mounted men posted at the road-fork 'M'. No other troops are anywhere else observed.

Requirement. Lieutenant A's deduction as to the troopers he sees near 'J', and his decision at this time.

Solution. Deduction. Lieutenant A believes that the men he sees belong to a strong hostile patrol, probably a platoon, sent on an independent mission They apparently have stopped temporarily and are preparing breakfast. A march outpost has been posted to protect the detachment from surprise. Whether the enemy patrol will move via the route M-P-A or the route M-L-K, Lieutenant A cannot determine.

Decision. Lieutenant A decides to send back the report required at this time by the initial orders of General A and then to move through the woods east of 'M' to the stream.

Discussion. The fact that the horses of the enemy patrol are saddled and being held by horse-holders indicates that the patrol has not bivouacked during the night in the orchard. Rather it appears to Lieutenant A that the enemy probably has been on the march for several hours and is now preparing a hot breakfast.

Situation 6. Lieutenant A intends to cross the road L-M, avoiding the enemy at 'P', and to move under cover of the woods to the stream just north. Before taking this step, however, Lieutenant A prepares a message for the brigade commander.

Requirement. The message sent to General A.

Solution. See Plate 29.

Discussion. Although Lieutenant A was directed to inform the brigade commander as to the direction any observed enemy force was moving, he did not feel justified in waiting inactive until the enemy patrol should resume its march. The important part of the patrol mission still lies ahead, and this Lieutenant A realizes and acts accordingly.

Situation 7. Lieutenant A calls two men to him, informs them they are to carry a message back to the brigade commander and designates a man in charge. He reads the message to them, has them each repeat it to him, directs them to destroy it if in danger of capture, and in event either or both avoid capture, to deliver the message orally to the general.

Requirement. Directions as to the route to be followed by the messengers, given by Lieutenant A.

Solution. "You men will move back over this unimproved road, the one that you have just passed over, as far as the main highway. Then move west along the main road until you reach the first crossroad. Turn south and cross the

river. You should meet troops of our left column about 7:45 AM about a mile south of the river. Move at 6 miles an hour."

Discussion. The lieutenant causes the messengers to retrace their steps to the main road near road-junction 'K', because he feels confident this route, just passed over, will be entirely familiar to them. He does not send them by the right fork of the unimproved road which traverses the wooded nose of the hill towards the southwest, because he fears they may become lost over this unfamiliar route. This trail, it is true, may be shorter than the prescribed road, but the risks of going astray on an unmapped intersecting trail are too great to be overlooked.

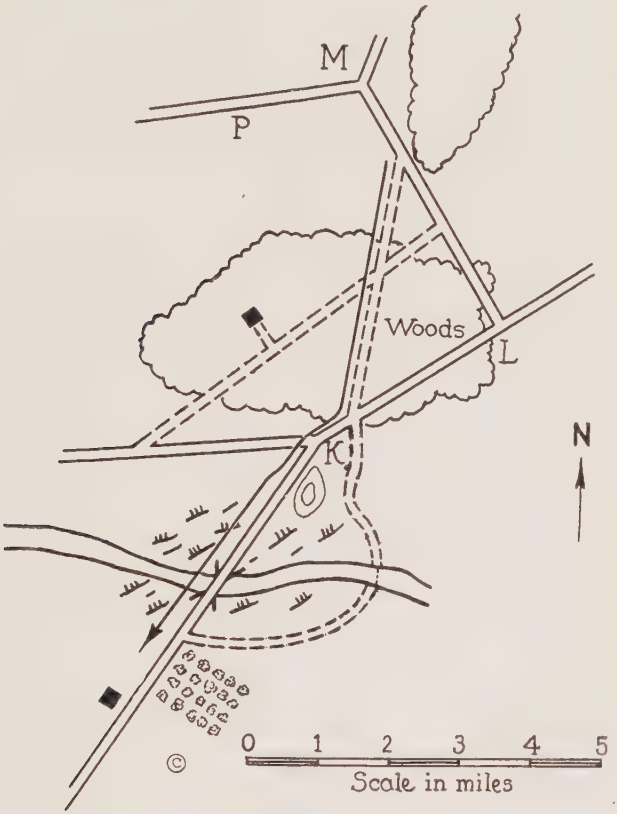


PLATE 30. Route Selected for Messengers.

In time of war, especially in enemy territory, good maps will either be entirely lacking, or, when available, will be so filled with inaccuracies that it becomes a most difficult task for even a trained and careful observer to follow them. Maps ten or fifteen years old are also extremely difficult to follow due to changes in the man-made features of the terrain constructed during that period. Roads on the old map may have entirely fallen into disuse and been discontinued; trolley lines shown on the map may have been torn up; new roads may have been constructed. It is well, therefore, to look at the date on a map and then make allowances for its age.

Lieutenant A might well have made a rough sketch of the route the messengers were to take, and have handed it to them upon their departure (see Plate 30).

Situation 8. The patrol, two men at a time, each set of twos separated by a half-minute interval, cross the road L-M at a rapid gait. The crossing point

selected is where the trees are densest just east of the junction of the main road (L-M) with the unimproved road (K-M).

Requirement. The route and formation taken through the woods.

Solution. The lieutenant and his orderly ride just inside the western edge of the woods. They seek concealment from the enemy on the highway, but ride close enough to the edge of the woods to permit the lieutenant to keep the road, M-N, under observation. The remainder of the patrol, in column of twos, parallel the march of the lieutenant and his orderly but 15 or 20 yards farther to the east, being careful never to get out of sight of the leader.

Discussion. No explanation is required to account for the action of the patrol in avoiding the enemy near 'M', and in seeking the safety of concealment in the woods. The patrol crossed the road as it did, the men being widely separated, in order to lessen the chances of being observed by the enemy march outpost at 'M'. Once safely across the highway, the patrol moves under cover of the trees towards the creek to the north. The lieutenant rides where he can see the road for two reasons, first, to determine if the hostile detachment has discovered the presence of the patrol, and is taking steps to intercept or capture it, and second, to keep the road under general observation.

Situation 9. The patrol halts long enough at the creek to water the animals and continues, under cover of the trees, along the western bank of the creek toward 'W'. (Plate 26.)

Finding the going increasingly more difficult on account of dense underbrush and thickly growing trees, Lieutenant A decides to move to the unimproved road east of the creek. In clambering across the creek and up the slippery bank, a horse falls and is unable to pick himself up. Investigation shows that he has broken one of his front legs.

Requirement. Decision and action of Lieutenant A as to the animal.

Solution. Lieutenant A decides to destroy the animal. A pistol shot might attract the attention of some hostile group, so the lieutenant decides against that method of destruction. He, therefore, orders the cinch to be undone, the saddle pulled off, and the animal rolled over partly on his back. One man is directed to hold the horse's head well stretched out, while the lieutenant with a powerful blow of his saber across the underside of the neck severs both jugular veins.

Discussion. To abandon an animal with a broken leg would have been inhumane. To insure it speedy death from loss of blood is not only the kindest thing to do for the horse, but the safest course for the patrol.

Situation 10. The situation is unchanged.

Requirement. Decision as to the disposition of the trooper whose mount was destroyed.

Solution. Lieutenant A orders the dismounted trooper to carry his saddlebags, containing his rations, to a point in the woods, opposite the road-junction about one and one-half miles southwest of 'W' (Plate 26), and to remain concealed in the edge of the woods until relieved by him, or by other friendly troops.

Discussion. Naturally, the patrol cannot be handicapped by the presence of a dismounted man. The latter must shift for himself. Lieutenant A expects the main body of friendly troops to pass 'W' sometime during the day, and the dismounted man can then join them. If for any reason the advance does not reach this point, the lieutenant intends to make further provision for the man that evening.

Situation 11. The patrol gains the unimproved road and moves northwest. A low humming noise, becoming rapidly louder, announces the approach of an airplane.

Requirement. Decision of Lieutenant A.

Solution. Lieutenant A by prearranged signal, causes his patrol to take posts, dismounted, on either side of the road (as shown in Plate 31), and to remain motionless until the plane has passed.

Discussion. On a road such as this, offering no cover or concealment, Lieutenant A adopted a formation intended to deceive an air observer. This formation has every appearance, especially from any reasonable height, of man-made culverts or small bridges. Men must keep their faces down and avoid peering upward at any plane. The sudden flash of a face gazing toward the sky is easily picked up by an observer, and his attention is immediately attracted.

Lieutenant A could also have caused his patrol to scatter quickly, dismount, and remain motionless until the plane had passed.

Situation 12. As the patrol nears the road junction just ahead (about one and one-half miles southeast of 'W') it is overtaken by a man driving a Ford car coming from 'L.' The lieutenant halts the car and questions the man, who

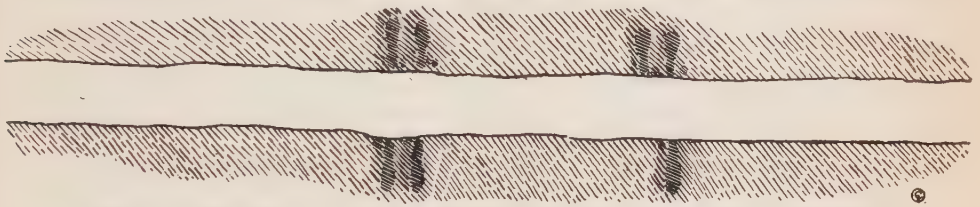


PLATE 31. **Formation of the Patrol While under Observation by a Hostile Plane.**
Note similarity to appearance of culverts.

claims he is a farmer living farther east, and is bound to town 'C' for supplies. He states further that he has seen no soldiers at all, and knows nothing about the war.

Requirement. Disposition of the farmer and his auto, made by Lieutenant A.

Solution. Lieutenant A puts a man in the Ford and sends him back along the road towards 'J' with instructions to pick up the dismounted trooper and return with him to the patrol. The farmer is required to remain with the patrol, which protects itself, as customary while halted, by means of a march outpost. Lieutenant A decides to commandeer the automobile upon its return, and have it driven by the trooper whose horse was destroyed. He believes the car may prove valuable in rapidly transmitting any message he may have to send. The farmer he then releases on foot.

Discussion. A detachment on a mission of this kind cannot be burdened with the care of a hostile civilian. His value as a source of information to higher headquarters is almost negligible, so no reason appears for holding him prisoner and sending him back by car to the brigade. The patrol was authorized under its initial orders to commandeer vehicles, and Lieutenant A acted strictly within his rights in so doing. Under no circumstances should the farmer be permitted to precede the patrol, nor should he be set free close to a town or house from which a telephone message could easily bring hostile troops down upon the detachment.

Situation 13. The patrol is nearing the position reported held by the enemy, and in all probability will find its progress materially slowed down by the presence of hostile troops. Greater caution is now necessary for its every movement. The patrol cuts eastward across country from one unimproved road to the next avoiding the junction about one and one-half miles southeast of 'W.' This junction may be under observation from 'W.'

Reaching the unimproved road parallel to the X.Y.Z. R.R., Lieutenant A decides to gain the shelter of the woods just south of the tracks. These woods, he considers, may be held by the enemy and the patrol may be subjected to fire as it approaches the tree line. However, the woods are his natural objective, and Lieutenant A decides to chance an effort to reach them.

Requirement. Formation adopted by the patrol in moving from the unimproved road to the woods.

Solution. The patrol moves at a trot and gallop in line of troopers at 5-yard intervals until it gains the trees. It then assembles.

Discussion. A wide-open formation is adopted to avoid loss from possible gun fire from the woods. Rapid gaits are maintained to cover the open space as quickly as possible, and at the same time reduce the danger from carefully aimed hostile fire, which might develop from the woods.

Situation 14. Unchanged.

Requirement. What is done with the automobile at this juncture?

Solution. The driver of the car is directed to move by road until he finds a place to leave it and go across country to the woods. The car is concealed among the trees for future messenger service.

Discussion. The lieutenant sees no reason for abandoning the car, so has it driven to a convenient place of concealment for future use.

Summary.

We shall not follow the patrol any further on its mission. We have remained long enough with it to see how it operated in a series of normal situations, all directed towards gaining a single goal, the objective 'J.'

In this exercise, we have covered the following problems:

Designation of objectives for bounds.
Selection of routes.
Method of using field-glasses.
Decision to avoid the enemy.
Formulation of a message.
Instructions to messengers.
March formation of a patrol in woods.
Handling an animal casualty.
Disposition of trooper thus dismounted.
Action upon approach of airplane.
Disposition of captured civilian and his automobile.
Method of approaching objective over an open field.

Additional Map or Sand Table Problems.

The students may be given a number of short practical problems based upon the subject matter of the text, and the situations illustrated in the preceding problem and exercise. These problems may be given on the sand table.

Exercises on map or sand table should be supplemented by exercises on actual terrain whenever practicable. Demonstrations and problems may be readily adapted to the terrain available.

MUSKETRY

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MUSKETRY.

Introduction.

Cavalry fights mounted, dismounted, and by a combination of these methods. In offensive action, a considerable part of a cavalry command may be engaged dismounted; in defensive action, the major portion is usually dismounted. Thorough knowledge of the application of small-arms fire is therefore essential to the well-trained cavalryman.

Success in dismounted combat depends upon gaining fire superiority, and while maintaining it to close with the enemy. If our fire superiority does not force him to withdraw, it at least prevents him from returning our fire effectively, and enables our mounted and dismounted elements to close with him and capture him or drive him from his position.

To gain fire superiority our fire must be properly directed and controlled; in other words, we must have team-work within the fire unit and between the fire units. Each fire unit must know how to perform its mission so as to help adjacent units and be helped by them. *This team-work in the application and control of the collective fire of rifle and machine-rifle units is musketry.* Collective fire is the combined fire of a group of riflemen. A fire unit is a unit capable of delivering rifle fire or rifle and machine-rifle fire under the direct control of its leader.

Conditions of modern warfare have greatly decreased the number of men that one leader is able to control in combat. With the wide deployments made necessary by the intensive fire of modern weapons, personal direction and supervision of more than a few men are difficult and at times impossible. Therefore, our fire units must be small enough to be controlled by one leader in combat, and at the same time large enough to develop appreciable fire power. The cavalry units which meet these requirements are the rifle squad and (at times) the rifle platoon.

Extended-Order Drill, Rifle Marksmanship, and Machine-Rifle Marksmanship are prerequisites to a course in Musketry. It is desirable that Scouting and Patrolling also be given prior to Musketry, but it may be given concurrently.

In Rifle Marksmanship the soldier is taught the fundamentals of shooting. He learns to take the proper position quickly, to aim the piece correctly, and to squeeze the trigger properly, both in slow and in rapid fire. He learns that by the use of the windage screw and sight slide he can move the strike of his bullet to the desired spot. He applies this knowledge in firing at a black and white target at a known range. He soon gains confidence in his ability to hit, an important factor in training.

In **Musketry** the soldier applies the knowledge he has gained in Rifle Marksmanship to firing individually and collectively on targets and areas of unknown range and often of poor visibility. Firing at a given area as simulating a concealed enemy, or on a line of silhouette targets, some of which are concealed, makes proper *fire distribution* necessary in order to cover the entire target. In order to open fire with the correct sight setting, we must have some method of *estimating the range* to the target at which we are shooting. To be sure that all members of the fire unit know where and what the target is, we must be able to *designate* it to them quickly and simply. If we shift the fire of part of the men to cover another target, the original target must be kept covered by the remainder of the fire unit. The leader of the fire unit must be able quickly and effectively to concentrate or to distribute the fire of his men. The proper rate

of fire must be maintained, and the men taught to obey quickly any order or signals given by their leader.

The principles and practice of musketry may be grouped under six general headings, as follows:

Range estimation.	Fire discipline.
Target designation.	Fire control.
Rifle fire and its effects.	Exercises combining the above.

The chapters in this course will cover the steps of musketry training in the sequence given above. Each of these steps will be explained, its principles demonstrated, and the students should then be required to apply these principles by means of practical exercises. Questions follow each chapter, covering important points discussed therein.

Questions.

1. On what does success in dismounted combat principally depend?
2. What is Musketry? With what weapons does it deal?
3. What are the fire units? Why are they limited to this size?
4. What is the relation between Rifle Marksmanship and Musketry?
5. Of what items does the course in Musketry consist?
6. What would be the effect on (a) fire power and (b) control if each member of the squad were provided with a semi-automatic, shoulder-firing weapon?

CHAPTER I.

RANGE ESTIMATION.

Accurate estimation of the range is essential to effective rifle fire. No matter how well the piece is aimed and how carefully the trigger is squeezed, the bullet will not hit its intended target if the wrong sight setting is used.

In battle, ranges are seldom accurately known in advance, and even though our soldiers are good shots they will never be able to gain fire superiority unless the range has been accurately determined and their sights set accordingly. Therefore, a practical method of determining ranges must be so thoroughly drilled into them that they will use it almost automatically, even in the excitement of battle. Naturally, this method must be simple and short, so that anyone can understand and apply it.

Methods of Range Estimation.

Briefly outlined, the various methods of determining ranges are:

1. Estimation by eye.
2. Use of tracer bullets.
3. Observation of fire.
4. From other troops.
5. Measurement on the ground.
6. From maps.
7. With range finders.

The last two can be dismissed as being of little use to the rifle squad and platoon, as maps and range finders are seldom, if ever, available for such small units.

Measurement of ranges on the ground can be accomplished only where a position is being prepared for defense; (1) before the enemy has appeared in the vicinity, or (2) far enough in rear of the battle line to be free from his observation and fire. It would then be possible to measure ranges to prominent objects or features of the landscape and prepare a chart (Plate 2) showing these points and the ranges to them for use when the position is attacked. This should always be done when practicable.

In case we relieve or reinforce troops already in position, it is sometimes possible to obtain from them the range to enemy positions or a chart such as is mentioned in the preceding paragraph.

However, cavalry actions develop and culminate so rapidly that the simplest methods are habitually employed. These methods are:

1. Estimation by eye,
2. Use of tracer bullets,
3. Observation of fire.

Of these, estimation by eye is the simplest and the one most commonly used.

Estimation by Observation of Fire. Observation of fire requires a dry or sandy soil, where the strike of the bullet will raise a spurt of dust visible to the firer. Under any other conditions this method would be of little or no use.

The following points must also be taken into consideration:

a. Dust will appear somewhat above the point struck by the bullet.

b. If observation is made from the firing point, hits will appear on the side towards which the wind is blowing.

c. If observation is made from a point on the flank, shots which pass over the objective will appear to strike on the side towards which the observer is posted; those which fall short, towards the opposite side.

Use of Tracer Bullets. Tracer bullets do not have the same trajectory (do not carry as far) as ball ammunition, therefore, it is necessary to make a correction in the range obtained by tracers before applying it to the use of ball ammu-

FIG. 1 VERTICAL TARGET. Hostile machine gun in window of steeple. Range 800 yds.

SHOT PATTERNS RESULTING FROM VARIOUS SIGHT SETTINGS

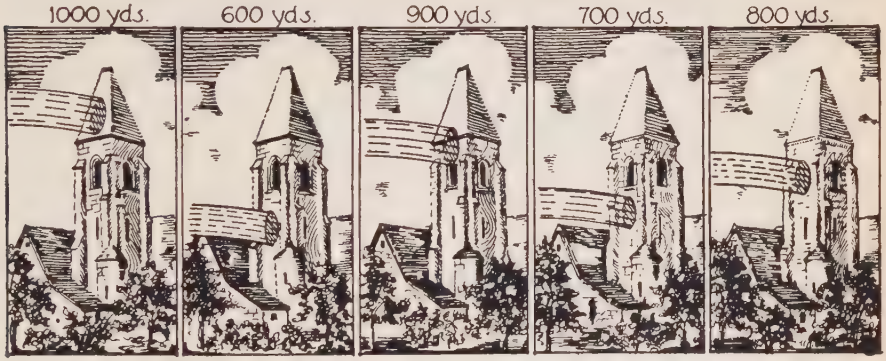


FIG. 2 HORIZONTAL TARGET. Hostile machine gun at 800 yds. on the same level. Beaten zones resulting from various sight settings, average shots

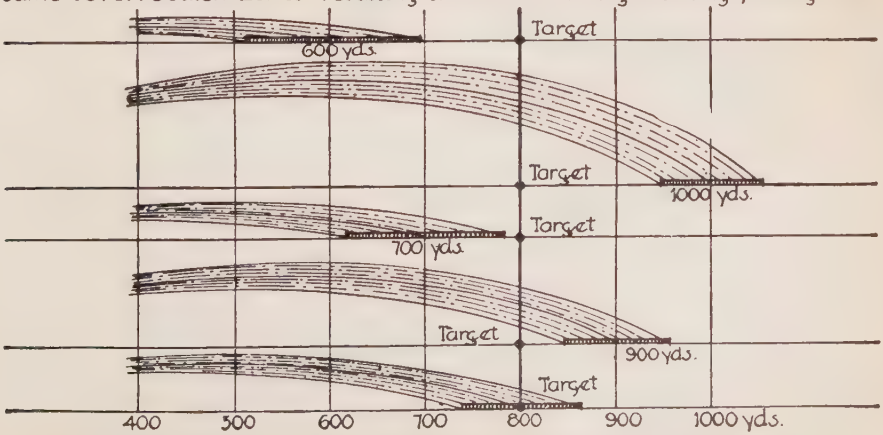


PLATE 1. Effects on Accuracy of Rifle Fire of Errors in Estimating Range.

nition. This is not only complicated and confusing to the soldier, but also causes delay in securing the correct range.

The following table shows the correction in sight settings to correct the range used when firing tracer ammunition to the proper range for ball ammunition:

Sight settings used with tracer ammunition (Model 1918).	Deductions when using ball ammunition (Model 1906).
100 to 300 yards	None.
400 to 600 yards	75 yards.
700 to 1000 yards	50 yards.

Note. The new type ammunition (the MI boat-tailed ball cartridge and the Model 1928 tracer) may be fired with the same sight setting for both ball cartridge and tracer. The new ammunition has a flatter trajectory than the old and hence requires a different sight setting.

Estimation by Eye.

Estimation of ranges by eye, therefore, remains the one method which can be used under all conditions. The estimates of untrained men, however, are little

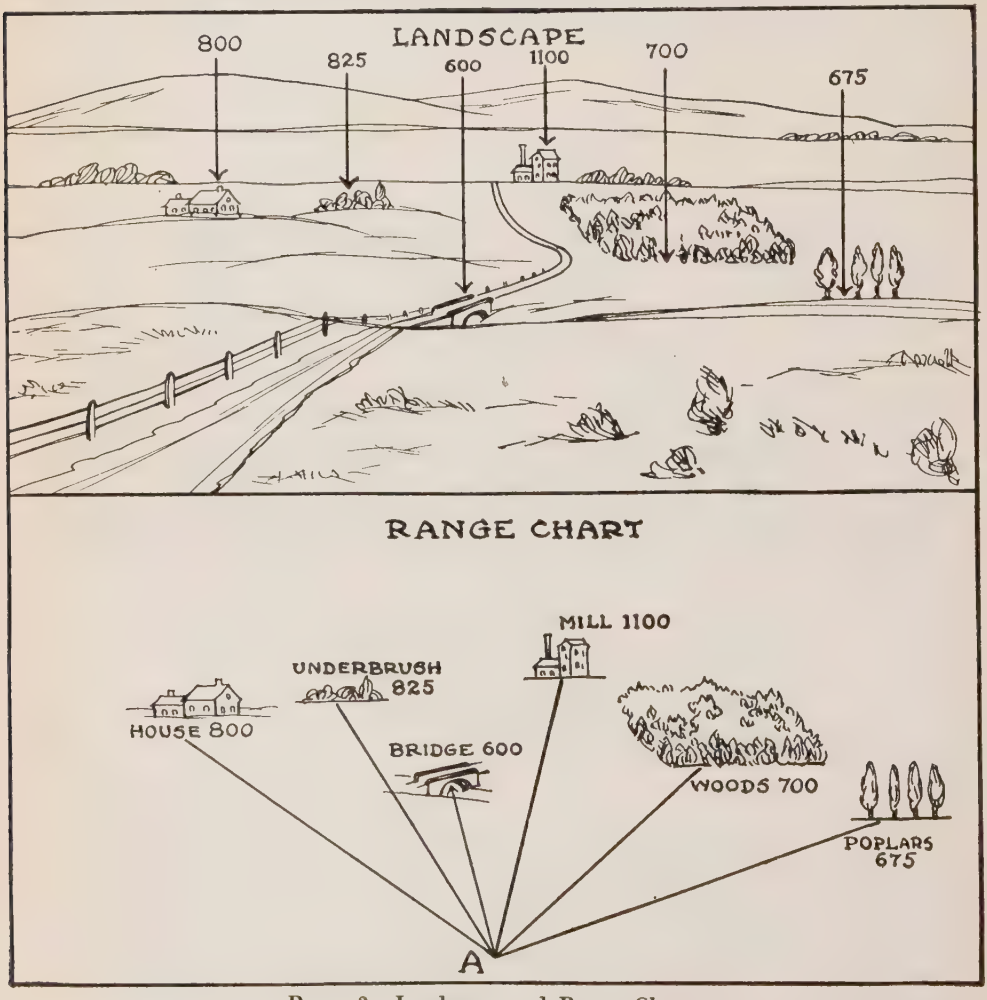


PLATE 2. Landscape and Range Chart.

better than a guess and their errors will average over 15 per cent of the range. Even at the usual battle range of from three hundred to six hundred yards, this will mean an error of fifty to one hundred yards. Setting sights with an error like this would result in "shorts" and "overs," with a few shots striking the target. It is necessary, therefore, if we are to make this method of real value, that the men receive training in estimating ranges by eye which will enable them accurately to judge distances, even under the most trying conditions.

The Unit of Measure. To estimate a range by eye we mentally apply to it a unit of measure, or "ruler," one hundred yards long.

To make this method accurate the men must be thoroughly familiar with the appearance of the "hundred yard ruler" over different kinds of ground and at

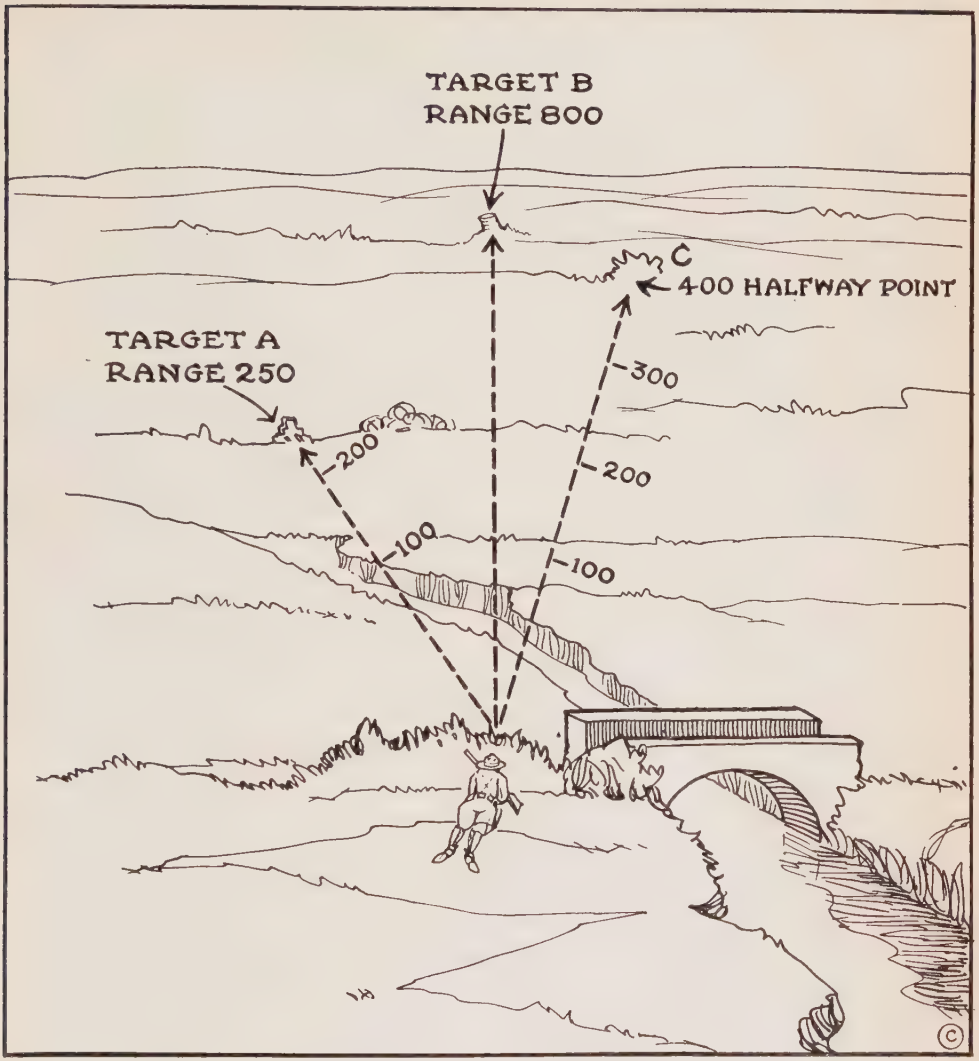


PLATE 3. Range Estimation.

different distances from them. One hundred yards staked off at a distance of five hundred yards from the observer looks much smaller than a hundred yards which is only half that far away. Measured on a hillside, one hundred yards looks quite different from the same distance measured on level ground.

Applying the Measure. After the soldier thoroughly understands the appearance of this "hundred yard ruler" under various conditions we teach him its application in measuring ranges. Up to five hundred yards this is a comparatively simple process. The "ruler" is applied to the distance to be measured in a manner similar to that which we would apply in measuring a board with a yardstick; the difference being that we *actually* lay the ruler on the board, lift it, move it forward its own length and repeat until we have reached the end of the board, while with our "hundred yard ruler" this must all be done by eye.

Take for example the target *A* in Plate 3. The scout observes a movement of the small bush there, and decides to fire at it as it may conceal an enemy. He mentally applies his "hundred yard ruler" to the distance. He finds that the first length reaches to the farther bank of the creek. Moving it forward another length, he finds that it does not quite reach the bush. He estimates that it is about a half a "ruler" length to the bush, giving the range as 250 yards.

For ranges of over five hundred yards, the application of the unit of measure is more difficult. It is much harder to measure accurately one hundred yards with the eye as the distance increases, and five hundred yards represents the approximate limit up to which we can apply our "ruler" with satisfactory results. We seldom if ever use rifle fire at ranges over one thousand yards, therefore, we shall limit our range estimation to that figure.

Estimating Ranges Over 500 Yards. For ranges which at first glance appear to be over five hundred yards we must change our method slightly. First we select a point which we consider half way to the target. We apply our "hundred yard ruler" to the distance to this half-way point, just as we have done in measuring other ranges, double the result and we have the range to the target.

Take now the target *B* in Plate 3. The scout sees at a glance that it is more than five hundred yards away from him. He estimates that the bush at *C* is half-way to *B*. Mentally applying his "ruler," he finds that it is four lengths to *C*. He doubles the result and has the range to *B*, 800 yards.

When the target is more than 500 yards distant, consider the conditions which cause objects to seem closer to or farther from the observer than they actually are. These conditions may even affect the estimation of ranges under 500 yards. Where much of the ground between the observer and the target is hidden from view it is impossible to apply the unit of measure to the hidden portion. In such a case one must estimate the distance across the depression by the appearance of objects on the farther side. If the target is some distance beyond the depression, then apply the "ruler" to this remaining distance.

Conditions Affecting the Estimate.

Objects seem nearer:

a. When the light is good.
b. When the color of the object contrasts sharply with the background.
c. When the surface between the observer and the object is uniformly flat, as water, a level stretch of snow or meadow.
d. When looking from a height downward.
e. In the clear atmosphere of high altitudes.
f. When looking over a depression, most of which is hidden.
a. When in a poor light, fog or smoke.

Objects seem more distant:

b. When the object blends into the background.
c. When only a small part of the object can be seen.
d. When looking upward toward higher ground.
e. When looking over a depression most of which is visible to the observer.

Summary of Method of Range Estimation by Eye.

a. Have the appearance of the ruler, 100 yards measured on the ground, firmly fixed in the mind.
b. Apply this unit to the range as a unit of measure.
c. If unable to determine exactly the number and fraction of times it is contained in the distance, add several estimates, and determine the average.
d. If the range is over 500 yards, select a point midway to the target, carefully estimate the range to this point and double the estimate.

To insure further accuracy in estimating range the estimates of several men should be averaged.

Effect of Errors in Range Estimation. The following table is based on the results of experimental firing riflemen who were above the average in individual proficiency, all of the men being expert riflemen or sharpshooters.

The table shows the results secured by selected riflemen firing with correct sight settings as compared with results made with incorrect sight settings. By firing a certain number of rounds with sights correctly set, 100 hits were made. The same men at the same range then fired the same number of rounds but with the indicated error in elevation. The number of hits made with the incorrect sight setting is as shown in the table. To illustrate: "Good marksmen" at 800 yards with correct sight setting will make 100 hits, but if the sights are set at 900 yards or 100 yards in error, they will make but 41 hits, as will be seen from the table by looking along the 900-yard until the 100-yard error column is reached, where the figure 41 will be found. By a study of this table it will be evident that where an error is made in determining the range, the number of hits made on the target will drop off very rapidly as the error in range determination increases. It will also be noted that the effect of an error in estimation increases as the range increases. Thus an error of 100 yards will cause only 17 misses in 100 shots at 400 yards, but at 1000 yards it will cause 68 misses. It is therefore very important to estimate the longer ranges accurately.

All ranges are estimated in yards. In using the table to determine scores do not interpolate for estimates other than even 50 or 100 yards, but take from the table the number of hits corresponding to the nearest tabular range.

TABLE I.

RELATIVE NUMBER OF HITS AT VARIOUS RANGES WHEN INCORRECTLY ESTIMATED.

Range used, yds.	Error in Estimate, yds.								
	0	50	100	150	200	250	300	350	400
	Relative number of hits.								
400	100	96	83	67	49	32	21	12	8
450	100	96	81	62	43	27	16	9	6
500	100	93	78	57	36	21	10	6	3
550	100	92	74	50	30	15	7	4	1
600	100	91	69	43	23	9	4	2	0
650	100	90	64	38	18	7	3	0	
700	100	88	59	32	13	5	1		
750	100	86	55	27	10	3	0		
800	100	84	50	22	6	1			
850	100	82	46	18	5	1			
900	100	80	41	13	3	0			
950	100	78	37	11	2				
1000	100	75	32	8	1				

Questions.

Why is accurate determination of the range essential?

Name five methods of determining ranges.

How are ranges usually determined by dismounted troops in mobile warfare?

Describe the method of estimating ranges by eye up to 500 yards.

Describe the method of estimating ranges by eye for over 500 yards and less than 1000 yards.

What are the objections to the use of tracer bullets in determining ranges?

What conditions are necessary to make observation of fire a suitable method of determining ranges?

Why do we limit range estimation in Musketry to 1000 yards?

What conditions cause objects to appear closer than they really are?

What conditions cause objects to appear farther away than they really are?

Why must the simplest methods be used in cavalry action?

CHAPTER II.

TARGET DESIGNATION.

Target designation is a vital element in musketry training. The adoption of smokeless powder and neutral-tinted uniforms, the prevalence of camouflage in the concealment of works, together with the proper use of cover and suitable backgrounds, all tend to diminish the visibility of targets, thus making proper target designation most essential. A faulty designation in confusing, the men for whom it is intended will not all recognize the target, and consequently their full fire power will not be brought to bear upon it. The powerful fire effect rightly expected from troops trained in marksmanship and range estimation will never be realized unless their full fire power can be promptly applied to these indistinct targets. The prompt application of this fire power is substantial proof that the designation was correct.

To designate targets properly and to interpret designations, the soldier must be able to observe and study terrain, and apply to its features the proper military and topographical terms, as well as thoroughly understand the methods of target designation.

This knowledge can best be gained by out-of-doors activities. Map making and huting, as well as instruction in Scouting and Patrolling, give opportunities for association of the features and names (Plate 4), which when coupled with visual training (Scouting and Patrolling), enable the soldier readily to identify and to designate targets.

During combat, targets will consist of enemy troops or the positions where these troops are known or thought to be. In searching for such targets the observer looks for movement, smoke, freshly dug earth, cut branches or any unnatural appearance in the features of the terrain as well as the color and outline of men in the enemy uniform.

The use of a system in searching terrain gives much better results than a mere haphazard looking over the ground. The two principles to be observed are:

Search in overlapping strips.

Study the terrain to determine probable enemy positions.

These principles are covered in detail in Scouting and Patrolling.

Methods of Target Designation.

There are three general methods of target designation. The equipment available, the time and means of communication, and the tactical situation will determine which method or combination of methods to use. Considering those methods as principles (they are correct principles of target designation), the measure of successful leadership will be a man's ability to apply correct principles to concrete cases on the battlefield. Practice and common sense are the essentials of the training which will fit him to do this.

The three methods of target designation are:

By use of tracer bullets.

Pointing with arm or rifle.

Oral description.

Target Designation by Tracer Bullets. Tracer bullets are the quickest and surest means of designating targets during combat. It is much simpler for a man to set his sights as told by scout or squad leader, watch a tracer, and shoot at the place where he saw the tracer hit than it is for him to pick up the target by having it pointed out or described to him.

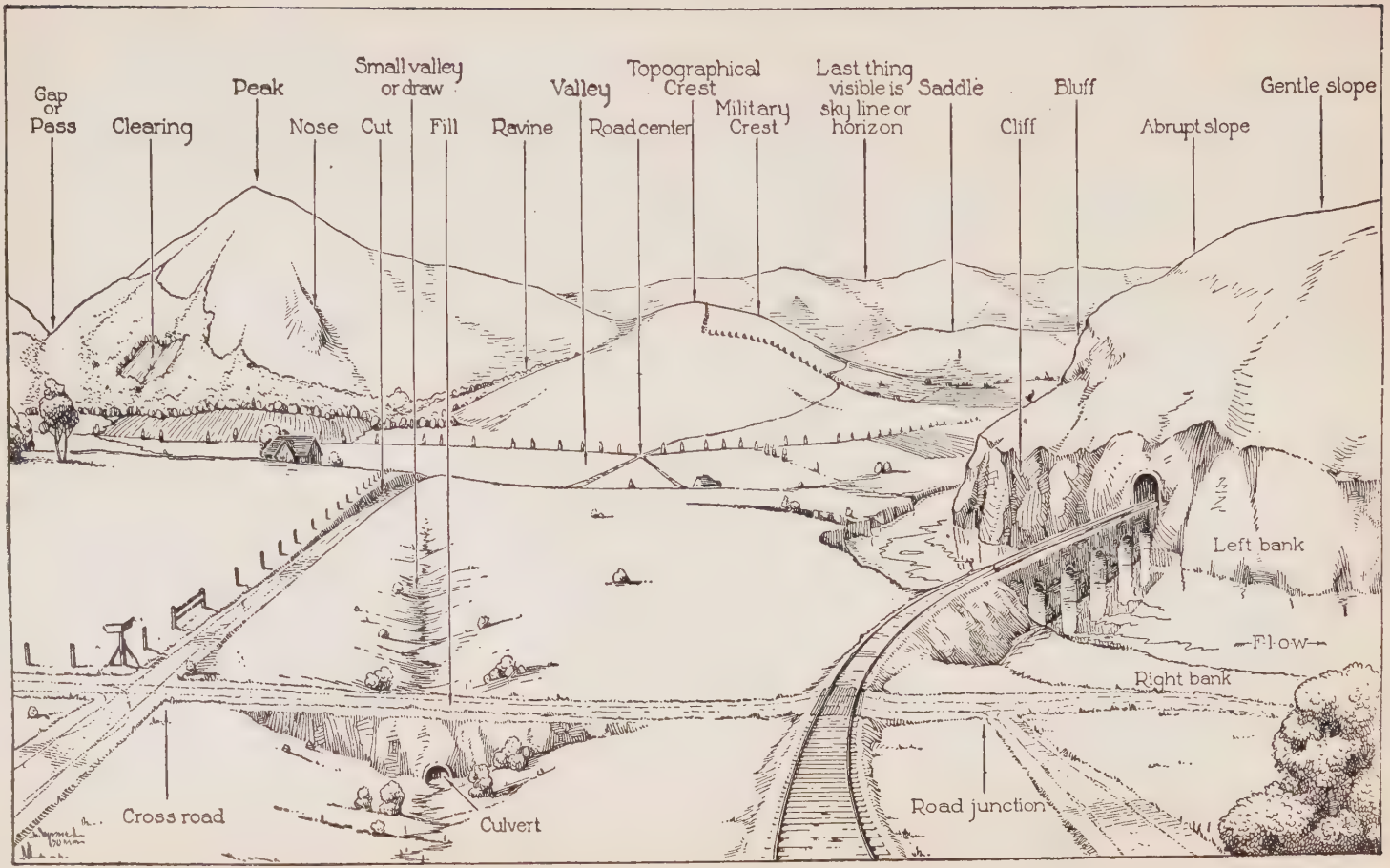


Plate 4. Military Features of the Terrain.

Tracer bullets not only give to a trained man a good idea of the range, but check the range for a man firing. His eye can, with practice, follow his own tracer bullet. If the scout or leader fires at a target whose range he has estimated, and the bullet does not strike the point aimed at, he estimates the amount of correction necessary, applies it to his sight, and fires again. He repeats this process if necessary until his tracer bullet has come very close to or struck the target. He then signals the range he has thus determined.

All the unit, even though scattered over 200 yards of front, can follow the trajectory of the tracer bullet through the air, and get the direction to the target.

If the target is a point, such as a machine gun or automatic rifle, the tracer will indicate its exact location better than the best description. It will locate a small area, which contains the target. Fire must be applied to this small area of terrain, if the enemy is skilled in the use of cover, because the target may not be seen.

If the target has width or frontage, as for instance an enemy skirmish line,

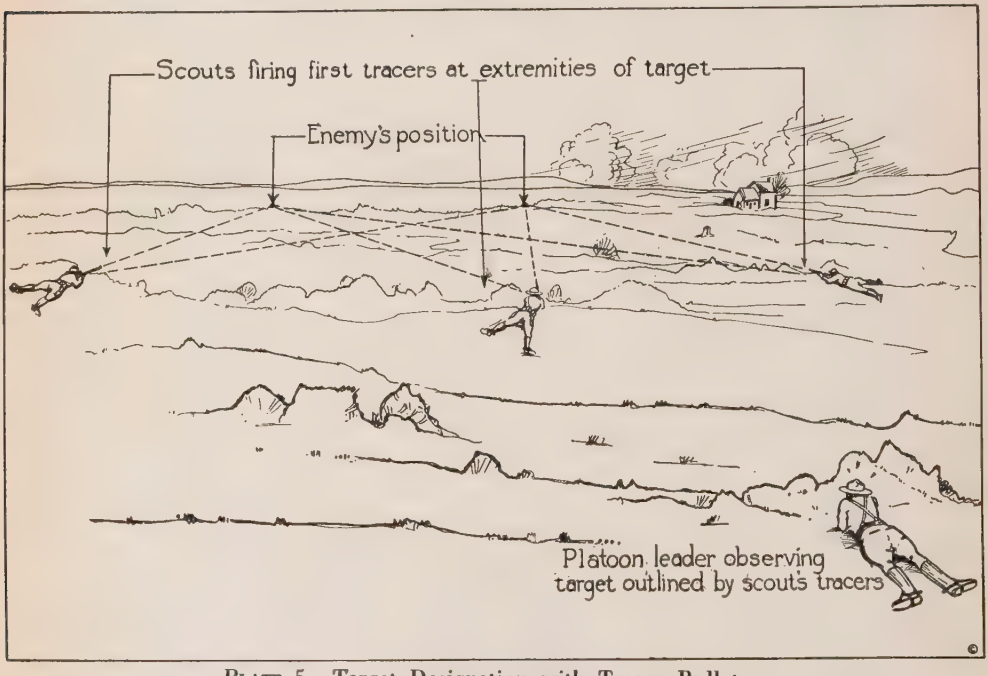

Scouts firing first tracers at extremities of target
Enemy's position
Platoon leader observing
target outlined by scouts tracers

Plate 5. Target Designation with Tracer Bullets.

The scouts indicate first the flanks or extremities of the target, as shown. They then distribute a number of shots over the front of the target between the flanks, thus indicating to their unit that they are firing on a linear target.

its flanks are designated first, and announced as "Left flank" or "Right flank," then a few tracers are distributed along the front of the target to show that it is continuous. This locates the line of terrain or frontage to be covered by the fire of the unit. The movement and action of the enemy will further define the target to the eyes of the men, thus accurately directed to a definite area of the terrain by the tracer bullets.

The men using tracer bullets must be able to adjust their fire accurately. The range used (the corrected range), should always be announced or signaled to the unit by the men using the tracers. The scouts in front, the squad leader in rear, or a flank patrol 200 yards to the flank, can all use this means of target designation equally well. The scouts, especially, should be trained in the use of tracers.

The range is always signaled or announced by the scouts or leaders who are designating the target. When possible they also caution, "Watch my tracers."

Example.

Range 500 (signalled), tracers point out target; or
Range 500 (orally), watch my tracers.

The disadvantage of using tracers are that they spoil the surprise effect of a sudden burst of fire, and their continued use may disclose the position of the firer to the enemy.

Dull light and dark background are favorable for the observation of tracers while bright light and light background render their observation more difficult. This is equally true for the enemy observers as well as our own.

Target Designation by Pointing. Pointing is used both before and during the fire fight to indicate targets to men who are near. It will usually be necessary to supplement it with verbal description to make the designation absolutely clear.

Pointing with the rifle is more accurate than with the arm, as the sights can

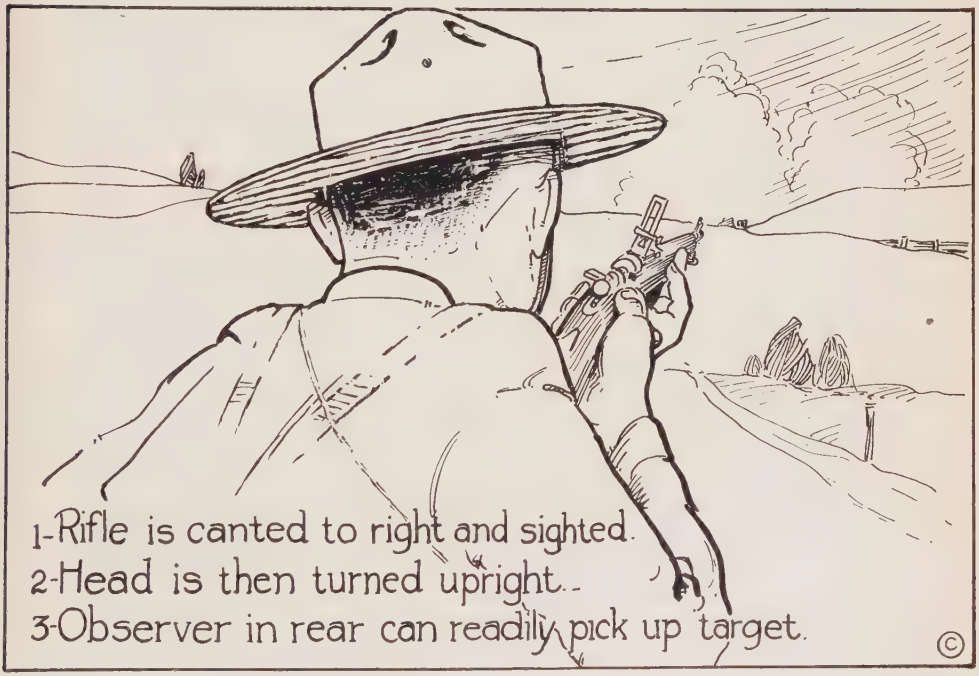


PLATE 6. Target Designation by Pointing with the Rifle.

be accurately aligned on the target, thus precluding any chance of misunderstanding.

In pointing with the rifle, as shown in Plate 6, the rifle is canted to the right, the sights aligned on the target, and the head moved to the left. This gives an opportunity for the person to whom the target is being designated to place his eye close to the rear sight and easily "pick up" the target.

In pointing the range is always announced and usually some supplementary description of the target will be necessary.

Example.

Range: 450 (pointing with arm, or as the other looks along the sights).
Enemy machine gun.

Target Designation by Oral Description.

Oral description is used by the section leader, before fire is opened, to designate the target to his squad leaders, and by the latter to designate the target to their squads. It is frequently supplemented by pointing.

The three elements of oral description are; *Range, direction* and *nature of target.*

The only condition under which any of these elements may be omitted is when immediate fire effect is demanded on an obvious target. In such a case either or both of the latter two elements may be omitted. For example, an enemy column comes suddenly and unexpectedly into view. The announcement, *Range 700* would be sufficient to designate it.

The **range** is given first so that men may set their sights before starting to look for the target. The one exception to this rule is in calling attention to targets visible for only a few seconds, before giving the range. For example, a group of enemy making short rushes can be indicated to the unit, they can watch where they drop, then get the range and set their sights, and be ready to open fire as the enemy commence the next rush.

The **direction** is given second, so that having set the range on the sight leaf one can look in the general locality of the target, which is definitely identified by **nature of target,** given last.

Simple Description. When the target is located at an easily recognized point, as in Plate 7, a simple oral description is used.

The distance or range must be given first, thus:

1. Range, 450.

This tells the soldier how far to look for the target. It fixes a zone of the terrain within which the target will be found.

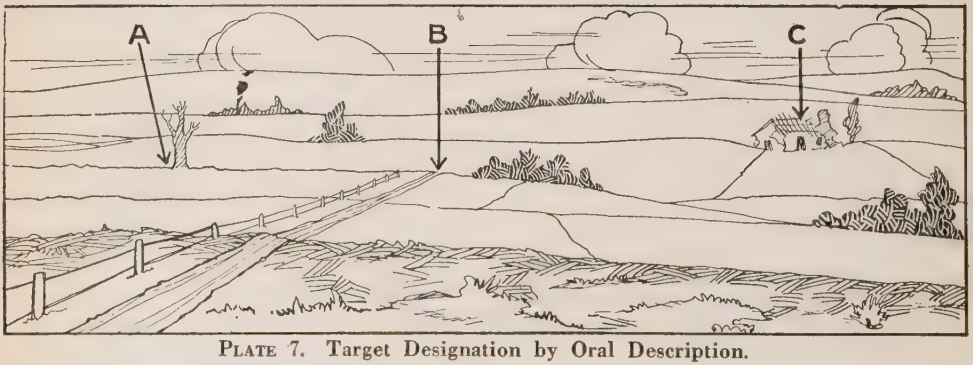


PLATE 7. Target Designation by Oral Description.

The direction is given next.

In this case the target is at a prominent point which serves to locate it, thus:

2. Base of dead tree to left front (pointing).

The nature of target is given last, thus:

3. Sniper.

The complete target designations for *A, B* and *C* include these three items, thus:

A. Range, 450. Base of dead tree to left front (Pointing). Sniper.
B. Range, 400. Where road disappears over crest. Lone scout.
C. Range, 600. Right doorway of ruined house. Automatic rifle.

Use of Reference Point. When the target is indistinct or obscure and is not situated at some prominent point, it will be necessary to locate it by its relation to a prominent point or feature of the landscape in the same general direction. This prominent point or feature is called the **reference point.** Care should be taken that there is no chance of confusing the reference point selected with similar objects within the field of view.

A reference point more distant than the target will usually give greater accuracy than one which is nearer than the target.

Measuring Lateral Distances from Reference Point. Targets may be classified under two heads with relation to reference points:

On line from observer to reference point.

Not on line from observer to reference point.

1. The target at *F* (Plate 8) illustrates the first case. The proper target designation would be:

Range: 450.
Reference: Right edge of ruined house.
Target: Machine gun in edge of woods.

2. When there is no suitable reference point on line with the target one must be selected elsewhere and the target tied to it. In other words, we must indicate how far to the right or left of the reference point the target is located. This is done by measuring the number of "sights" between the reference and the target in the following manner. The observer assumes the firing position, his cheek against stock of his rifle at a certain point (determined as shown in

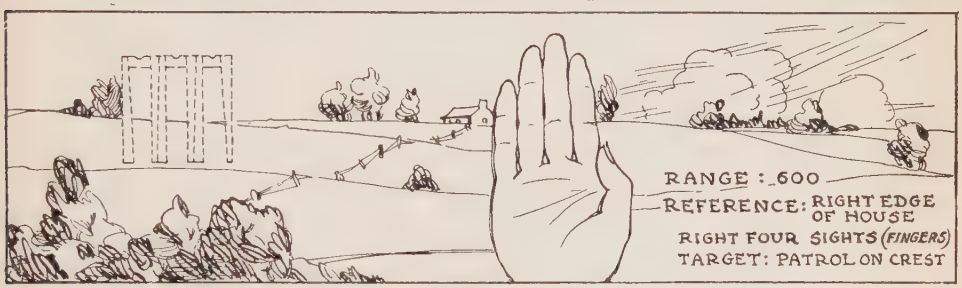


PLATE 8. Measuring Frontage by Sights or Fingers.

Exercise 8 at end of course in musketry). Aligning the left edge of the raised sight leaf on the right edge of ruined house (Plate 8) he finds that the right edge of the sight leaf lines up with a dip in the hills above the woods (*X*). Therefore *X* is "one sight" to the right of the reference (ruined house). If the target is a machine gun in the field at *H*, one sight is measured as above, the rifle shifted slightly to the right until the left edge aligns with the first position of right edge (*X*) and we find the present position of the right edge of the sight leaf to be on *H*, two sights to the right of the reference.

The proper designation for the machine gun at *H* would be:

Range: 700.
Reference: Right edge of ruined house, right two sights.
Target: Machine gun (in wheat field).

Designation of Linear Targets.

As an example of a target which has width or frontage and is not on the line observer—reference point, we shall take a skirmish line along edge of woods. Such a target is called a *linear target*, and both of its flanks must be designated.

At *I-K* (Plate 8) the flank nearer the reference is located as the point (target) in the preceding example, then the extent of the target's front is measured in the same units. This locates the other flank of the target, it being understood of course, that the target extends *away from* the reference.

The designation for the target *I—K* would be:

Range: 400.
Reference: Right edge of ruined house, left two sights.
Target: Enemy skirmish line, extending left two sights along edge of woods.

The extent of front and the location of both flanks of the target are thus indicated accurately.

One sight leaf intercepts 5 yards for each 100 yards of range or 1/20 of the range. Thus in the preceding example, the range being 400 yards, a sight leaf intercepts $4 \times 5 = 20$ yards, or 1/20 of $400 = 20$ yards. (See Exercise 8.) Hence the front of the target (2 sights) is 40 yards. If it consist of skirmishers at 5-yard intervals, it contains eight men. It is probably a squad of the enemy. Thus the range and frontage of an animated target give an indication of its strength.

Finger widths may be used like sight leaves to measure distances laterally or along the front. This method is not so accurate, but can be applied more quickly, and several finger widths may be measured at the same time, as shown in Plate 9.

In designating a target we give the direction "right" or "left" before the number of sights, merely to save a little time. As soon as "right" (left) is

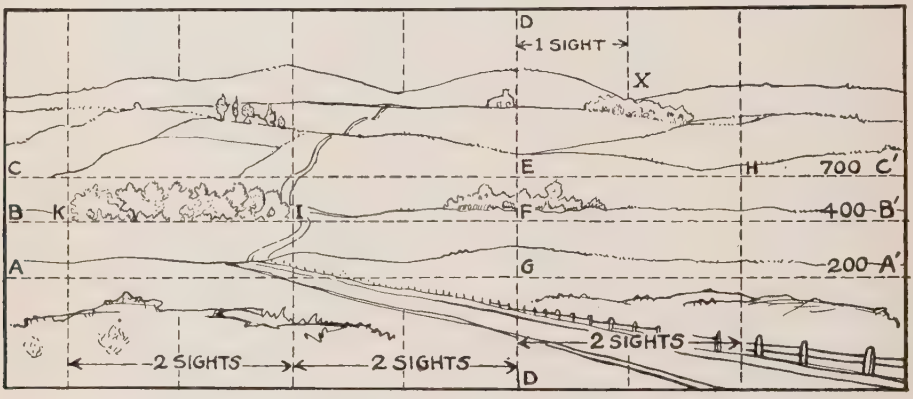


PLATE 9. Measuring Frontage by Sights or Fingers.

given, one can start to align the left (right) edge of the sight leaf on the reference point.

In designating a target the range fixes a zone (parallel to the front) within which the target lies. The direction lays out a path which crosses the "range" zone, thus picking out a small area within which the target lies. Lastly the nature of target identifies the point, within this smaller area, which is the target. For example take Plate 10, Oral Target Designation.

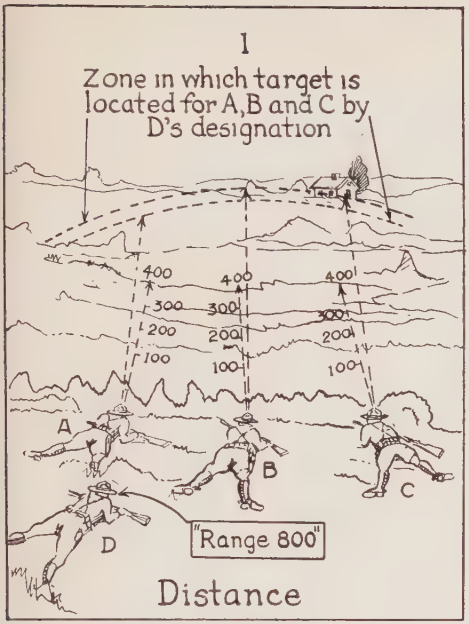
(1) *D* announces the "Range" as "800," which locates the target in a certain zone for *A, B* and *C*. (2) "Reference" shows the general direction. (3) "Left 3 sights" locates a small area in the range zone, which must include the target and which makes its complete identification much easier when its (4) "Nature," is announced.

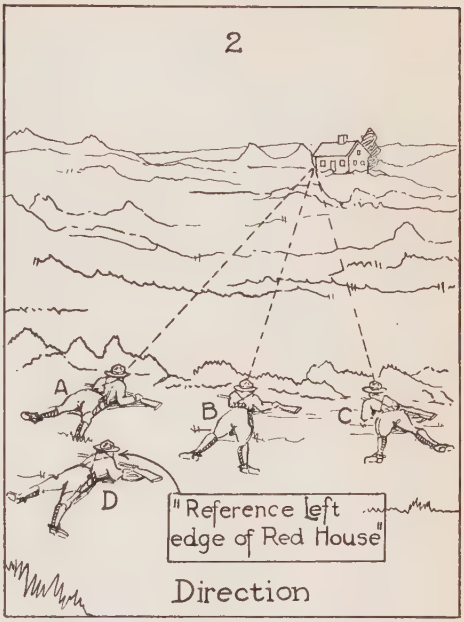
Remember the simplest type of oral description which will fit the conditions will be the most effective.

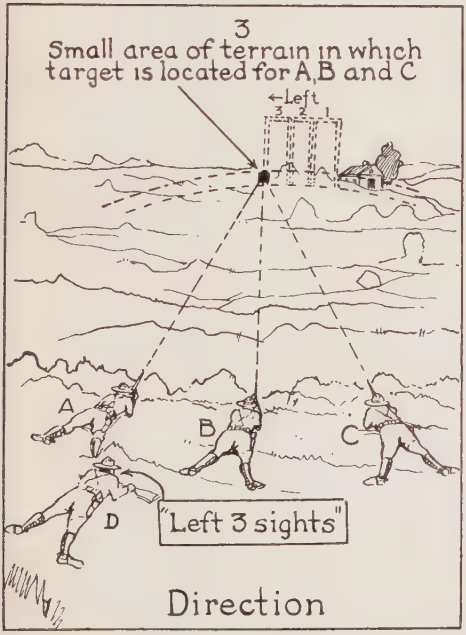
If one end of the target is considerably nearer than the other the average range will be announced. Dispersion will cover the target.

Formal description is always given first, but may be supplemented by informal conversational description, when the former cannot adequately describe the target.

The designation of a target must be definite, accurate, and simple so all will understand it. Usually one of the three methods will be sufficient. At other times two or even all three methods of designation will be necessary before every man in the unit understands where and what the target is.







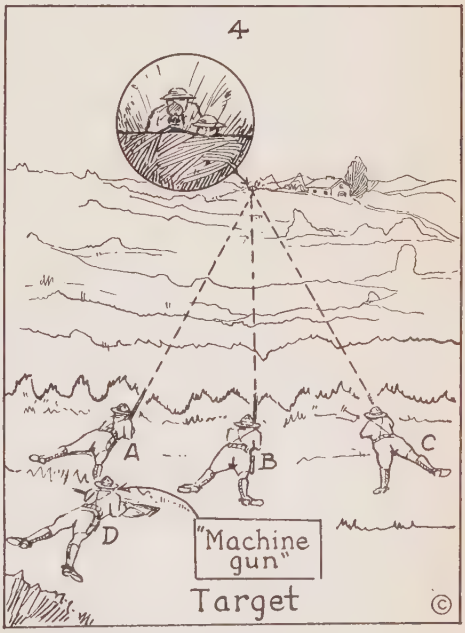


PLATE 10. Mechanism of Target Designation by Oral Description.

Questions.

What conditions in modern warfare tend to diminish the visibility of targets?

What is the real test of target designation?

Why is a knowledge of the features of terrain, their names, and forms necessary in target designation?

How can this knowledge be improved?

What do you look for when searching for targets in battle?

What are the three general methods of target designation?

Explain how a machine gun would be designated by tracers.

Explain how a skirmish line would be designated by tracers.

What are the disadvantages of using tracers for target designation?

Explain the method of designating a target by pointing with the rifle.

What are the three elements of oral description?

What are reference points and why are they used?

What is the unit of measure used in measuring frontage?

How is a linear target, which is some distance to the right of the reference point designated?

If one end of a linear target is nearer than the other, what range is used?

CHAPTER III.

THEORY OF FIRE.

The soldier or student has now learned to use the rifle and machine rifle (or automatic rifle), and by means of correct range estimation and porper target designation to apply the fire of these weapons to indicated points and areas. In this chapter we shall discuss the action of the bullets he fires and the effect of this fire upon the enemy. He must understand these so that he can apply his fire in such manner as conditions and circumstances require, and so as to produce the greatest possible effect on the enemy.

The Trajectory.

The trajectory is the path of the bullet from the time it leaves the muzzle of the piece until it strikes its target or the ground.

The bullet leaves the rifle at a speed of about 2700 feet per second, and because of this great speed its trajectory at ordinary ranges is very nearly flat. That is, it is almost a straight line from rifle to target. Plate 11 shows the trajectory for a range of 1000 yards where the rifle is fired from the level of the ground on a perfectly flat plain. With the proper sight setting (1000 yards) on the sight leaf, the rifle is aimed at a point on the plain 1000 yards distant. Naturally the

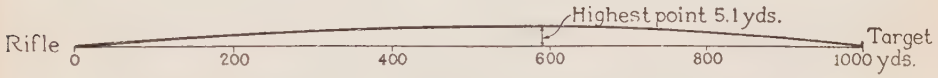


PLATE 11. Trajectory for 1000 Yards. Model 1906 Ammunition.

raising of the drift slide on the sight leaf to this sight setting will cause a corresponding raise of the muzzle of the rifle in order properly to align the sights on the target (1000 yards away). This gives the bullet an angle of departure of 49′ (minutes) above the horizontal, and causes it to rise about 5 yards (15.3 feet) above the horizontal line from the gun to the target. The following table shows the angle of departure, angle of fall, and the summit or highest point of the trajectory of the bullet for ranges from 100 to 1000 yards.

TABLE II.
ELEMENTS OF THE TRAJECTORY. MODEL 1906 AMMUNITION.

Range, yds.	Angle of		Summit of trajectory	
	Departure	Fall	Height in feet above horizontal	Distance from muzzle in yards
100	2′	3′	.06	53
200	5′	6′	.27	107
300	8′	10′	.62	161
400	12′	15′	1.1	215
500	16′	22′	2.0	270
600	20′	31′	3.3	328
700	26′	42′	5.0	391
800	33′	57′	7.4	456
900	40′	1° 16′	10.8	523
1000	49′	1° 38′	15.3	591

Plate 12 gives a graphic representation of these same trajectories, the vertical scale being made twenty times the horizontal scale.

As shown by the above table and Plate 12, the bullet does not reach its maximum height until over half way to the target. It naturally follows that its fall must be more rapid from that point (summit of trajectory) to the target, than its rise from the muzzle of the rifle to the same point. In consequence the angle which the trajectory makes with the line gun-target at the target, called the angle of fall, is greater than the angle of departure for the same range.

Danger Space. The trajectory of Model 1906 ammunition on level ground never rises above the height of a man for ranges up to 700 yards. (See preceding table, Plate 12 and Fig. 1, Plate 13.) Therefore, on level ground all the space from the muzzle of the rifle to the target is dangerous to a man standing in the line of fire, so we say the danger space is continuous up to 700 yards. For ranges of 800 yards and over the bullet is above the height of a man at and a little on each side of the summit of the trajectory, so that the danger space is not continuous but is broken into two parts; one, the space from muzzle of rifle

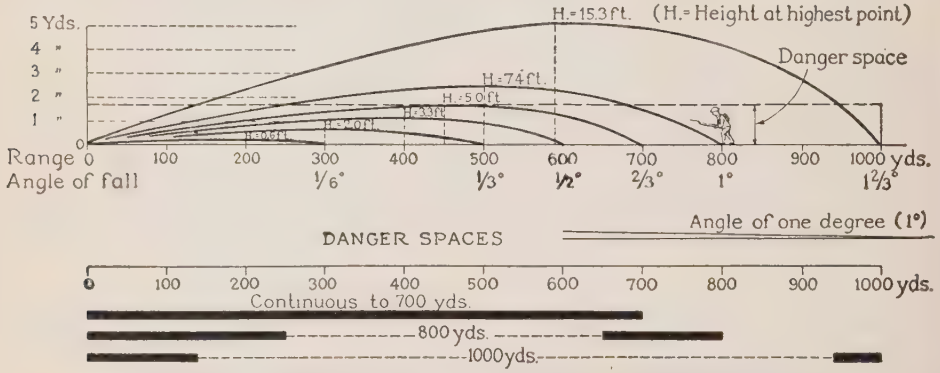


PLATE 12. Trajectories and Danger Spaces for 100-1000 Yards.

Note. The above ballistic data pertain to the Model 1906 ball cartridge. In general, the new MI ammunition (boat-tailed) compares ballistically with the Model 1906 ammunition as follows:

a. Maximum range. Approximately 6000 yards to 3450 yards for the M1906.

b. Muzzle energy. MI, 2800 foot pounds; M1906, 2400 foot pounds.

c. Maximum ordinate of trajectory:

Range (in yards)	Maximum height (in feet)	
	MI	M 1906
500	1.5	2.0
1000	9.3	15.3

to point at which bullet rises above the height of a man; and two, the space from the point at which bullet falls again to the height of a man, to the point at which it strikes the ground or target (Plate 13).

Danger spaces for various ranges are indicated at bottom of Plate 12.

Cone of Dispersion. Experiments and tests in rifle firing show that it is impossible for any man or any group of men to fire several shots so that all bullets will follow exactly the same path, *i. e.*, have the same trajectory. Due to differences in rifles, aim, and holding, the bullets are bound to scatter slightly. This effect is called **dispersion** and the trajectories of these bullets form a long narrow cone, with its apex at the muzzle, called the **cone of dispersion.** (Plate 14.) Naturally the dispersion of a group of men firing with same sight setting at the same target is greater than that of a single firer, as there are more elements to cause the variations. If one were looking across a target range where a rapid fire score was being fired with tracer ammunition this cone of dispersion would be seen as a long narrow sheaf of fire.

Shot Group. When the cone of dispersion strikes the target (either a vertical or a horizontal target) the bullets forming the cone will make a pattern

FIG. 1 CONTINUOUS DANGER SPACE

At short range the height of the trajectory never exceeds that of a man

FIG. 2 SHORT DANGER SPACE AND LONG SAFETY SPACE IN LONG RANGE FIRE

Between A and B the bullet is always higher than a man's head

FIG. 3 DANGER SPACES OF TRAJECTORY AND RICOCHET

At A occurs the "first catch" by lowest part of cone of fire. At B occurs the "first graze". At short and medium ranges, where trajectory is flat, there is an indefinite danger space beyond C, due to ricochet depending on the direction and remaining velocity of the ricochet bullets.

SHEAFS OF FIRE, BEATEN ZONES AND DANGER SPACES AT SHORT AND AT LONG RANGES

FIG. 4 SHORT RANGE

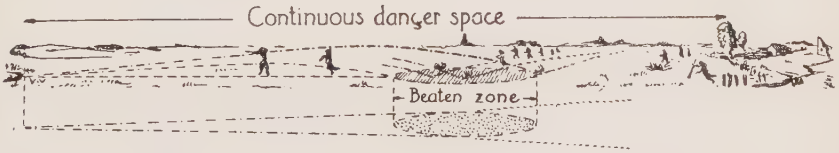


FIG. 5 LONG RANGE

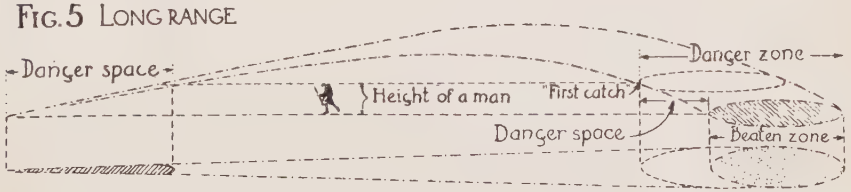


PLATE 13. Danger Zone, Danger Space, and Beaten Zone of Rifle Fire.

called the **shot group.** (Plates 14 and 15.) The hits are not spread evenly over the entire shot group, most of them will be "bunched" near the center of the group with the remainder "scattered" towards the edge or outer rim of the pattern.

Horizontal shot groups, due to the flatness of the trajectory, have a length of from 100 to 400 yards, depending upon the range. For ranges not exceeding 1000 yards, the length of the horizontal shot group, decreases as the range in-

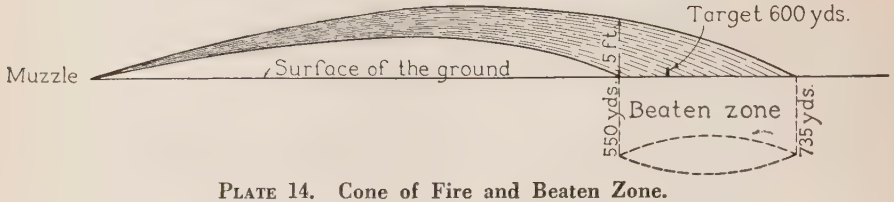


PLATE 14. Cone of Fire and Beaten Zone.

creases. Thus we see that the shot groups or patterns have the form of an ellipse. The following table gives the lengths of the axes of these ellipses for various ranges and on vertical and horizontal surfaces.

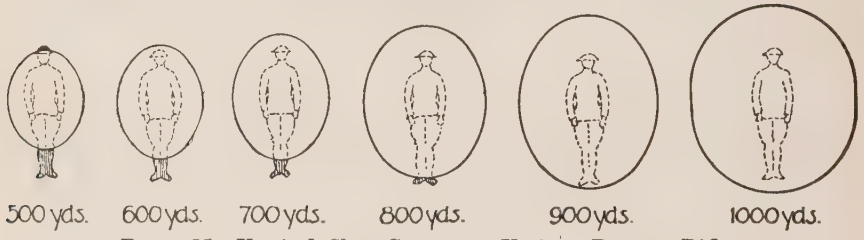


PLATE 15. Vertical Shot Groups at Various Ranges, Rifle.

Beaten Zone. The beaten zone is the intersection of the cone of dispersion with the ground. (Plate 14.) On level ground this would be the same as the horizontal shot group. Naturally the slope of the ground, as well as the range, has a great deal of influence on the shape and size of the beaten zone. This is best shown by Plate 16.

TABLE III.
AXES OF SHOT GROUPS. MODEL 1906 AMMUNITION.

Range	Mean vertical axis	Mean lateral axis	Mean longitudinal axis
Yards	Feet	Feet	Yards
200	2.	1.8	400
400	3.5	2.9	280
600	4.8	3.8	185
800	6.4	5.2	135
1000	8.3	7.4	105

Danger Zone. The enemy will be in danger if he is in the beaten zone or in the corresponding danger space. These two distances, taken together, are called the danger zone. (Fig. 5, Plate 13.)

Kinds of Fire.

The kinds of fire which may be used are classified as to direction, and trajectory, as follows:

Direction:

Frontal: Delivered at right angles to the enemy's line.

Oblique: Delivered at an oblique angle to the enemy's line.

Enfilade: Delivered at an objective from a point on or near the prolongation of its longer axis. The objective might be a line or a column.
Flanking: Delivered at an objective from the direction of its flank.
Reverse: Delivered so as to strike hostile troops from their rear.

Trajectory:

Grazing: Approximately parallel and close to the ground.
Plunging: Striking the ground at a considerable angle.
Overhead: Delivered at the enemy over the heads of friendly troops.

Naturally *oblique* fire is slightly more effective than *frontal* fire, while *enfilade* and *flanking* fire are very much more effective than either. We are seldom in

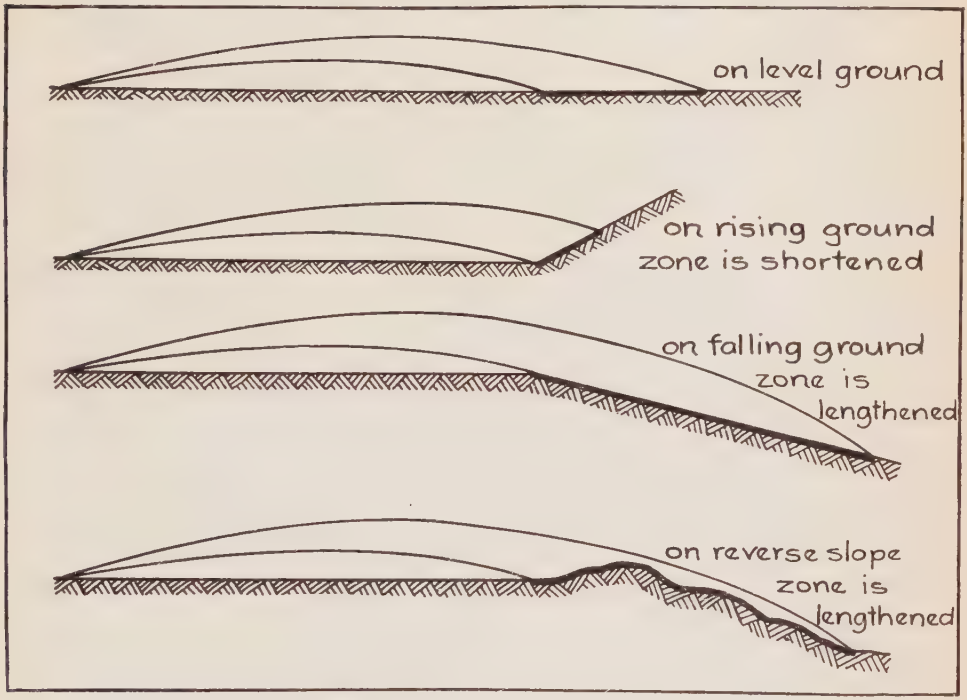


PLATE 16. Effect of Ground Slopes on Beaten Zone.

position to use *reverse* fire, but when it can be delivered the effect is the greatest of any, due, not so much to the actual casualties inflicted, as to the surprise and the destruction of the enemy's morale.

Direct fire is used in Musketry. It may be plunging or grazing as well. Grazing fire is more effective than plunging fire, due to its longer beaten zone and danger space.

Overhead fire with the rifle is safe when the ground affords protection to the friendly troops over which we are firing, as when troops on high ground are able to fire over the heads of their own troops, on low ground, to the front. The methods employed for the delivery of fire are explained in the next chapter.

Characteristics of the Rifle.

The rifle acts by fire alone. Its chief value as a weapon is its capability for the delivery of fire.

Mobility of the rifle. The average soldier can easily carry his rifle, and sufficient ammunition for a protracted fire fight. Accordingly the mobility of the rifle in dismounted action is the same as that of the individual soldier.

The rifle can be used effectively only for direct fire. While indirect fire is

possible, in actual battle satisfactory fire effect can seldom be obtained by using any aiming point other than the target itself, or a relatively small area in which the target is located. To apply the fire of its rifles, a unit must be deployed in line. It is impossible to utilize properly their full fire power in any other formation.

The rifle can effectively attack only targets which are above ground and in the open. The trajectory of the rifle at ordinary ranges is very flat, and its penetrative power is not great. Accordingly it cannot be used with effect against targets behind cover or below the surface of the ground, except to cause the enemy to keep down, thus preventing him from firing effectively. This is a very important effect.

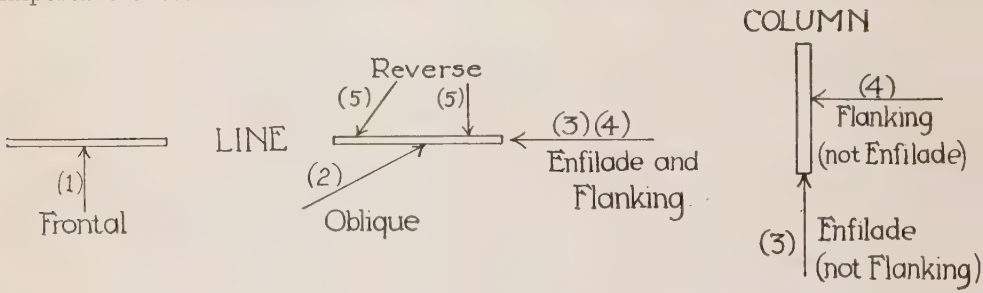


Plate 17. Diagram Showing Fires Classified According to Direction.

The fire of the rifle must be laterally distributed when firing at a linear target, that is one extending some distance from right to left, as an enemy skirmish line. Satisfactory effect demands that fire be laterally distributed over the entire front of the target. If there be one or two prominent points and all the riflemen aim at these points they will receive most of the fire and the rest of the target will be almost immune from fire. It is easy to distribute properly the fire of a deployed line over a linear target, but it must be done by one single, definite system, so simple as to be practically second nature to the trained men when acting almost independently in the confusion of battle. This method will be explained in the next chapter.

The rifle is especially adapted to fire against individuals and dispersed targets. A machine gun can be aimed at only one particular point at one time. A group of rifles may be aimed at various points or individuals. Moreover the fire of the rifle is more readily switched to another target than that of any other weapon. The bullets from the rifles of properly trained men will be better distributed than an equal number of projectiles from any other weapon. It is largely for this reason (effectiveness against dispersed targets) that the rifle is a most important weapon in mobile warfare.

Characteristics of the Machine Rifle.

The automatic rifle employs the same ammunition, has the same trajectory, and when fired semi-automatically (single shot), the same dispersion or accuracy as the rifle. When fired automatically its dispersion is from 4 to 6 times that of the rifle, the amount depending on the length of the bursts and the skill of the rifleman. It will be noted that semi-automatic fire is far more accurate and this should be the usual method of fire, automatic fire being employed only when a large volume is called for in emergency. Semi-automatic fire will consume ammunition as rapidly as it can be supplied, and at close range will be more effective under ordinary conditions.

The principal difference between the rifle and the machine rifle is in the rate and volume of their fire, and the amounts of ammunition they expend. Accordingly, the characteristics of the rifle as noted heretofore are virtually the same

for the machine rifle. This weapon has the following distinctive or additional characteristics.

The machine rifle can produce a large volume of fire. This makes it a valuable weapon when attacked to the squad and the one upon which much reliance must be placed. Its fire power is a large factor in the offensive and defensive strength of the squad.

Small area occupied in proportion to fire power. The machine rifle occupies the same frontage and depth as one ordinary rifle, as it is operated by one man. It is thus capable of producing a large volume of fire from a small area. This characteristic enables it to meet an attack from a flank with but little if any movement. It is therefore a most useful weapon for defense against attack from the flank.

Mobility and vulnerability. The machine rifle, like the rifle, is carried and operated by one man, but it consumes about 4 times as much ammunition as a rifle. The individual soldier can carry the weapon with a limited amount of ammunition. Other members of the machine-rifle squad carry extra ammunition for the weapon, sufficient for a protracted engagement. Accordingly the mobility of the machine rifle is practically that of the rifle squad, or somewhat less than that of the individual. As it is carried by one man and is no larger than a rifle, the machine rifle has the same vulnerability as the rifle, except that when fired automatically it is more apt to draw hostile fire upon itself.

The Battle Sight. The battle sight corresponds to a range of about 550 yards. It is less accurate than the peep sight and is used only when time is lacking for setting the peep sight. By keeping the peep sight habitually set at 300 yards, the soldier has three sights ready for emergencies, the peep sight for a range of 300 yards, the battle sight for a range of about 550 yards, and the open sight for a range of about 800 yards.

Firing at Field Targets. Field targets are neutral colored targets designed to look like soldiers when seen from a distance. The most common examples are the kneeling and prone olive-drab silhouettes issued by the Ordnance Department. When we say that success in musketry depends on individual marksmanship, we mean the ability to hit field targets as well as bull's-eyes.

Ability to hit field targets requires practice in addition to the regular known distance firing on *A, B,* and *D* targets, for the reason that the field targets are much more difficult to see clearly and the eye requires development to meet the increased strain of sighting.

The effect of the peep sight is to cut off a part of the light so that there is greater difficulty in seeing the target through the sight than with the naked eye. This is particularly true of the smaller peep sights. For field firing peep sights smaller than No. 6 should not be used. No. 8 peeps are preferable when they can be obtained.

Sometimes the soldier can see the target until he looks through the sights, when it will disappear because of the effect described above. In this case he must remember the exact position of the target in relation to the more prominent objects around it and then aim at the point where he knows the target to be. Fleeting targets require the same method of sighting.

Rules for Firing at Moving Targets. When firing at a man walking across the front:

At 100 yards aim at the forward half of his body.

At 200 yards aim at the forward edge of his body.

At 300 yards lead him one-half the width of his body, *i. e.*, aim half the width of his body in front of him.

At 400 yards lead him the width of his body.

Effects of Fire.

The effect of rifle fire is both physical and moral. Its physical effect is as follows:

Physical Effect. (1) *On Troops.* The effective range of the rifle is limited by the ability of troops to make hits rather than by the disabling power of the bullet. Fire is very seldom effective at ranges over 1000 yards, due to the difficulty of seeing and hitting enemy troops beyond that range. A ricochet is effective if it strikes a horse or man soon after leaving the ground. Ricochets lose their speed quickly, however, and are apt to be ineffective after traveling a moderate distance.

(2) *On Material.* Rifle fire is seldom used to advantage against enemy material. Its effectiveness depends on the range, the metal used in the armor, and the angle at which the bullet strikes. Well constructed defenses are bullet proof and cannot be destroyed by rifle fire. The bullet is often effective against light armor, helmets worn by individuals, and certain parts of light tanks. It is effective against aircraft flying within one thousand feet, slant range.

Moral Effect. At ordinary ranges the sound of a bullet passing within a few yards is a sharp, disconcerting crack. In the field, bullets which fall a little short will usually throw up a shower of dirt or stones and ricochet with a loud whine or hum. If troops under fire have cover but must expose themselves in order to fire, they will have a tendency to fire quickly without careful aim and then to duck behind the cover to reload. If the fire is very heavy they may keep down altogether and make no attempt to return it. Such action results from fear of being hit and from an unwillingness to take risks, when lying low seems to be the safest plan. Another moral effect of fire is that some men become excited and are unable to think clearly or act with coolness. Fire sometimes indicates by its volume that the enemy is stronger or by its direction that the enemy has the advantage of position. These are factors which cause discouragement. Fear, excitement, and discouragement with the resulting loss of will power are chief factors in the moral effect of rifle fire. This moral effect can be obtained entirely without hits when the enemy is behind cover, but nothing increases the moral effect of fire so much as hits. Consequently hits are the first consideration so long as the enemy, by exposure makes them possible. When hits can no longer be made, fire is continued when its moral effect alone is considered worth the effort and ammunition expended. When opposing forces are intrenched and neither side is trying to advance, fire for moral effect alone is of no value.

The moral effect depends very greatly on physical effect. To see a comrade killed or wounded has a discouraging effect on all men within view of him. So in the last analysis it is *hits* that count, and the training in marksmanship and musketry should be such as to secure the maximum of actual hits.

Fire Superiority. The effect of a properly directed fire is to cause the enemy to stay under cover, to render his fire far less effective and to restrict his movements. When the effect of the enemy's fire has been reduced to such an extent that the attacker is able to move forward without suffering ruinous losses, the attack is said to possess fire superiority over the defense. The extent of this superiority of fire will determine the speed with which the dismounted elements can close with the enemy. If the fire of the defense is wild and ineffective, the attack will be able to move complete units forward simultaneously over relatively long distances, and he will soon close with the defender in the shock of personal contact. If the fire of the defense be somewhat more effective the attack will be able to move only small units or fractions of a unit over relatively small distances, or his dismounted troops may have to work their way forward as individuals. When the fire of the defense is so effective that no

forward movement is possible without heavier losses than the attacking troops can endure, fire superiority lies with the defense.

Fire superiority is thus a moral phenomenon. The physical conditions upon which it depends are great volume, high accuracy, proper distribution and effective control of fire. But it must be accompanied by a steady and relentless advance of the attacking troops, that is fire and movement. It is impossible to "shoot the enemy out of his position." The moral effect of the steady advance of the attacking troops is a chief element of success. The term fire superiority is relative, inasmuch as a very weak and poorly directed fire may be sufficient to establish fire superiority over very inferior troops. Fire superiority is necessary to success in battle, and having once been established it must also be maintained. In combined cavalry actions, the dismounted elements must quickly develop their maximum fire power so as to support effectively the movement of the mounted units.

Questions.

What is the trajectory? What is meant by a flat trajectory?

Define: angle of fall; danger space; beaten zone; danger zone; cone of dispersion shot group.

Why is the highest point or summit of the trajectory more than half way from the gun to the target?

What is the shape of the shot group? What does a large shot group indicate?

How does the horizontal shot group change its shape as the range increases?

Define the different classes of fire according to the direction in which delivered. According to the trajectory.

What can you say as to the relative effectiveness of the different classes of fire?

Mention some of the important characteristics of the rifle.

Why does the rifle continue to be a chief weapon in mobile warfare?

What kind of fire is usually employed with the machine rifle and why?

What is the battle sight?

What are field targets and why is their use essential in training?

Give the rules for firing at moving targets.

What is meant by the physical and moral effects of rifle fire, and what is the relation between them? Which do you consider the more important, and why?

What is fire superiority? In what does it consist, and why is it important?

How may the attacker know when he has fire superiority over the defender?

Compare the danger space of M1906 ammunition with the of the new MI (boat-tailed) ammunition.

In combined action, why should dismounted elements develop their maximum fire power quickly?

CHAPTER IV.

DELIVERY OF FIRE.

The methods of delivering fire may be classified as: Distributed fire; concentrated fire; marching fire.

Distributed Fire.

Distributed fire is applied to the whole length of a linear target, as a skirmish line. All parts of the target must be kept under effective fire, otherwise fire superiority can never be gained. This is done by proper fire distribution. When fire superiority is once gained proper distribution is necessary to maintain it, otherwise those parts of the enemy line which are not being properly covered may develop their own fire in great volume and accuracy.

Method of Distribution. Distribution is both individual and collective. The following instructions apply to each individual, whether acting alone, as a member of a squad, or as a member of a platoon: *Each man fires his first shot at that part of the target corresponding to his position in the squad, moves his aiming point a few paces to the right for each successive shot, until he reaches the right edge of the target, when he switches to the extreme left of the target and traverses to the right as before.*

Automatic riflemen use the same method, but fire two or three shots at each aiming point instead of one at a time.

Advantages:

The advantages of this method of distribution are:

The men of the squads do not have to divide an indistinct distance on the terrain into parts, but have only to recognize the limits or approximate limits of their target.

A casualty will not leave a portion of the target uncovered. As long as there are one or two men left in each squad they can properly cover the target, by this system.

Even if the exact limits of the target are not well defined, the chances are still great that one or more men of each squad will cover the entire target with fire.

The accurate fire of the good shots and the great volume of fire of the machine rifles are both distributed over the target.

There is a far greater possibility that the indistinct portions of the target will be covered since all men of the squad traverse their fire over them.

It is a system which will insure distribution of fire over the entire front of the target, even when the individuals of a squad or the squads of a platoon are widely separated or not under close control of their leaders, as it is unnecessary to assign particular portions of the target to particular individuals or squads.

Movements of individuals or squads to more favorable firing postions does not interfere with proper distribution.

The fire of one or two squads may be shifted to a new target and still leave the original target covered.

The platoon may advance by rushes of squads, or fractions of squads, under cover of the fire of the remainder of the platoon, who will keep the whole target covered.

As for the squad, so for the platoon, this system will work in all situations. It is simple, definite, automatic, requires no orders, and its application is merely a matter of training.

Exceptions to Rule for Distribution of Fire. Exceptions to the foregoing rule for distribution of fire are:

Marching fire.

Combat at close ranges.

In **marching fire** the riflemen fire to their immediate front and the machine riflemen distribute their fire along the enemy lines within limits which will insure safety for the men on their right and left.

Marching fire is delivered when within about 150 yards of an enemy over whom we have gained fire superiority. The firing line advances at a walk. Riflemen halt individually, aim, and fire standing, always keeping in a general

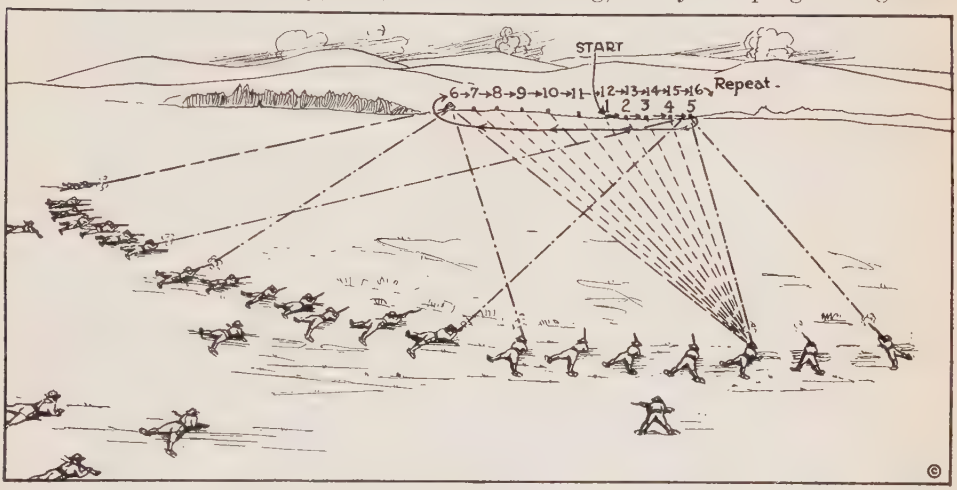


PLATE 18. Fire Distribution, Dismounted Action (Diagrammatic).

line. The machine rifleman fires semi-automatic fire while advancing. The machine rifleman supports his piece by means of the sling which is passed over his left shoulder. He steadies his weapon by pressing the butt well up under his right arm-pit holding it against his right side with his right arm. (See Plate 19.)

In marching fire the distribution is a combination of concentrated and distributed fire. The riflemen fire directly to the front while the machine riflemen distribute their fire along the enemy line within limits which do not endanger their own line. (Machine riflemen fire two or three shots at each point before traversing to right.) The method of distribution in marching fire and in combat at close ranges must not be confused with the method of distribution generally employed.

Marching fire enables the firing line to move forward quickly while maintaining fire. Its moral effect is usually greater than its actual physical effect. It has the disadvantages of making the attackers conspicuous and vulnerable to the fire of any enemy troops within range.

In **combat at close ranges** (about 200 yards and less), men will instinctively fire at the targets closest to them. Also distribution over the entire target would cause the firer to change position too often, and would endanger men on his flanks. Under these conditions (range is short and target seems long) men will limit their fire to that part of the target nearest them. Thus each squad covers from one-half to one-third of the target, and individual members of the squad distribute their fire over that portion of the target (one-half to one-third).

Concentrated Fire. Concentrated fire is that which is directed at one point, as an enemy machine rifle. In using concentrated fire the fire power of part of all the squad or platoons is applied at one point for the specific purpose of dis-

abling that particular target (usually a machine gun or automatic rifle) in the shortest possible line. Care must be taken by the leaders when concentrating part of their fire on any particular point to see that the remainder of the target is also covered with fire.

Rate of Fire. The best rate of fire in combat is that which will give the greatest number of hits, that is, hits per minute, unless failure of ammunition supply makes it necessary to save ammunition. In this case a slower rate of fire giving a greater percentage of hits, or more hits per 100 rounds fired, would be better. In exceptional cases fire is used for moral effect rather than for hits. For this class of fire a high rate is more effective. The fire must be kept on or very close to the enemy position, however, if it is to have any effect at all.

In rapid fire practice the soldier is trained to shoot from seven to ten shots per minute depending on the range. In battle the difficulty in picking out in-

PLATE 19. Marching Fire.

distinct targets will generally make a slower rate of fire advisable. Every shot must be carefully aimed, and fired by squeezing the trigger as taught in rifle marksmanship, or the fire will soon become wild, scattered, and ineffective.

It is impossible for leaders to prescribe or enforce exactly the most effective rate of fire. It will vary with conditions and with individuals under the same conditions. It is the duty of leaders, however, to control the rate of fire to the extent that they shall correct men who fire so fast as to prevent careful aim and trigger squeeze, as well as those who waste time by improper reloading or by using a poor position. In the excitement of battle it is the tendency of men to fire too fast. This tendency must be overcome by training and by careful supervision in battle. An approximate rule to apply in determining this rate is to subtract the number of hundreds of yards in the range from 13. Thus the rate of fire for 800 yards would be 13 minus 8 or 5 rounds per minute. This rule holds up to 1000 yards. Beyond that range effective rifle fire can seldom be delivered by the average soldier.

With the machine rifle the rate of fire depends upon range and visibility. It should not exceed 40 to 60 shots per minute, semi-automatic fire, i. e., single aimed shots.

Repeated experiments have proven that to increase the rates of fire above those given will, with average marksman, not only use more ammunition but secure fewer hits. This additional ammunition is therefore worse than at total loss. Every man must know this, and as a matter of training must fire at the correct rate for each range, unless ordered to use a slower rate.

How to Increase the Rate. Everything is done that will increase the rate of fire without affecting its accuracy. This includes:

Keeping the muscles in condition by exercise in bolt operations and simulated rapid fire.

Insisting that rifle bolts work smoothly and easily.

Keeping the rifle and ammunition clean, with particular attention to the chamber of the rifle.

Keeping the bolt and the bearing surfaces of the rifle lightly oiled.

Proper firing position, including use of the sling.

Reloading rapidly as taught in rifle marksmanship.

Elements of Fire Power. Fire power depends upon the volume, accuracy, distribution and control of fire. The volume of fire depends upon the number of men firing and the rate of fire. A platoon advancing by squad rushes will lose one-third of its fire power, while a platoon advancing by rushes of two men will lose only about one-tenth of its fire power. As explained in Method of Distribution the entire target must be covered with fire at all times to gain *and to maintain* fire superiority. The accuracy depends upon the training of the individual in rifle marksmanship and fire discipline of the unit. Fire control and fire discipline will be taken up in the following chapters.

The chief purpose of nearly all musketry training is to increase the fire power of troops in battle. It causes most of the enemy losses, and when sufficiently great, holds him pinned to the ground when he wishes to advance, or drives him from positions he desires to hold. Superior fire power makes the enemy's fire less effective so that our troops are aided in their advance or in holding defensive positions. Conversely a steady advance raises the attacker's morale while lowering that of the defender.

To produce the greatest fire power of which a platoon is capable, all members of the platoon must follow the principles of Rifle Marksmanship and Musketry. They should be so thoroughly trained in the application of these principles that they do so almost automatically, even during the excitement, nervous strain and fatigue incident to battle.

Questions.

What is distributed fire?

Explain the method of fire distribution.

Why is proper distribution essential to fire superiority?

What are some of the advantages of this method of distribution?

Does the machine rifleman distribute his fire in the same manner as the riflemen?

Is there any difference in distribution between squad and platoon fire?

What are the exceptions to the normal method of distribution?

How is marching fire delivered?

How does the machine rifleman carry his weapon in marching fire?

Upon what four elements does fire power depend? How is the maximum effect of each insured?

CHAPTER V.

FIRE DISCIPLINE.

Fire discipline is the state of order, efficiency, influence of previous training, and obedience existing among troops during the fire fight.

Discipline is the foundation of all army training. It starts with recruit drill and by being properly instilled and maintained brings the soldier to that point where he obeys, or does what he has been taught instinctively even though he may be too excited to think clearly.

Actual battle is the real test of fire discipline, and to meet this test the soldier must be so thoroughly trained that when he comes under fire he will do the right thing from force of habit.

In battle, unit leaders maintain fire discipline by the prompt enforcement of its principles, and by their own example and bearing. This discipline means the exact execution of all orders and careful attention to all details of his conduct in action, by the individual soldier.

Elements of Fire Discipline.

Specifically fire discipline embraces:

Prompt execution and transmission of orders.
Observance of the principles of rifle marksmanship.
Proper use of cover.
Observation of the enemy.
Conservation of ammunition.
Replacement of casualties.
Personal initiative.

Prompt Execution and Transmission of Orders. All orders must be promptly obeyed and passed on. Team work within the squad and platoon is essential to success in combat, but this cannot be maintained without the cooperation of all team members. The fact that a member obeys the order he receives does not terminate his responsibility in the matter. He must repeat it back to the sender as well as pass it on to, and see that it is understood by, the man next to him. These orders to the members of the squad on the firing line are usually transmitted:

By the squad leader to those nearest him, who in turn pass it on to the other members.

By the scouts to the squad members first arriving on the firing line, who in turn pass it on as other members come up. The corporal also aids in this.

Orders are transmitted by:

Voice.
Arm-and-hand signals.
Whistle signals.

Voice. The squad leader must ordinarily transmit or give his orders to the members of his squad by word of mouth. When the squad is deployed at extended intervals it may be necessary for the men to transmit these orders along the skirmish line. In doing this they must always state the source of the order, thus: "Corporal Jones said 'Fire faster;'" "Corporal Jones said 'Suspend firing.'" Orders intended for one man only will refer to his by name.

It should be remembered that signals are substitutes, to be used when the voice is inadequate for giving commands. Platoon leaders will use the voice if possible, or unless the noise of firing, the great separation of the unit, or the proximity of the enemy prohibit.

Arm-and-hand-signals. The voice is frequently inadequate for giving commands during fire, and must often be supplemented by signals of such character that they are easily understood.

The arm signals used to transmit orders and firing data in the rifle squad and platoon are explained and illustrated in the course of Cavalry Drill.

These signals are all simple and distinctive, but care must be taken to transmit them properly. Every member of the squad and platoon must be familiar with their meaning and able to use them for the transmission of information, orders, and firing data.

Arm signals are very useful in action, if they are properly used. They are dangerous if improperly used. Careful training in the use of signals and the rigid observance of the two following rules are essential:

a. If a signal is to be used it must be given properly, so that it can be read easily and correctly, even at the cost of danger to the sender.

b. A signal received must never be obeyed until it has been repeated back to the sender. If the sender does not signal back a correction, it is understood to be correct and will be obeyed. The duty of watching for, receiving, repeating back and seeing to the execution of the signal by the squad, falls primarily upon the squad leader.

The soldier should receive constant training in the use of arm signals so that they are readily understood.

Whistle signals. There are two whistle signals; *i. e.,* the short blast and the long blast. The former means "Attention to orders," the latter, "Suspend firing." All other whistle signals during combat are prohibited.

Whistle signals are for the purpose of attracting the attention of the squad leaders. Squad leaders must listen for whistle signals and heed them. The men must not. It is their duty to keep their eyes on the target and to devote their attention to the delivery of an efficient fire. They cannot do this if their attention is distracted by the sound of a whistle.

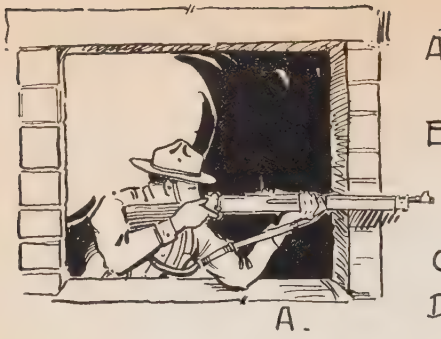
Whistle signals must be sparingly used. When in close proximity to the enemy such signals will inform him that some movement or action is about to take place, and he will watch for it. Their constant use would also tend to lessen their efficiency. It is for these reasons that their use is held to a minimum.

False orders. Within the squad and platoon there is little danger of false orders such as "Cease firing," or "To the rear," being obeyed. These units are so small and so well coordinated that a stranger is easily identified and his orders at once arouse suspicion which would lead to the verification of their source before being obeyed. However, the leaders must be particularly careful regarding any doubtful order which they may receive, being sure that it is issued by the proper commander, when that part is not stated in the order. Always verify in case of doubt.

Observance of the Principles of Rifle Marksmanship. The principles of rifle marksmanship are followed as closely as practicable. Modifications are often desirable and are made as occasions demand. During the excitement and confusion of battle the previous training in rifle marksmanship helps to steady the men and make their fire more accurate.

However, it is only by strict enforcement of the other principles of fire discipline in conjunction with these that the best results can be obtained.

Careful sight setting is a matter of training. Any well-trained and disciplined unit should be able to set its sights correctly within ten seconds after the order is understood. To set the sight press the thumb of the left hand against the slide, leaf down. Loosen the slide with the right hand and move it up or down by pressure with the left thumb. Guide and stop the movement and tighten the slide in position, with the right hand. Units should be practiced repeatedly in setting sights, both by signal and command, and in every possible position.

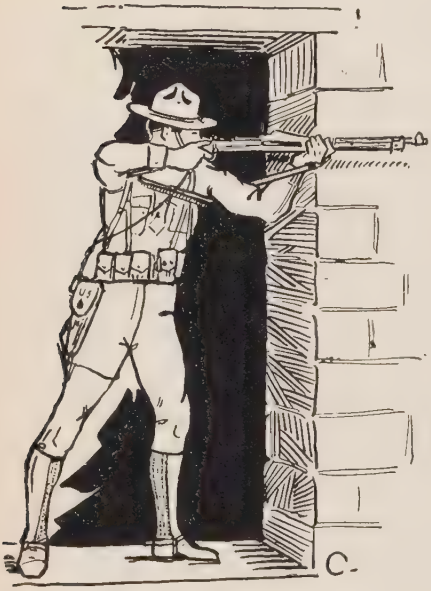


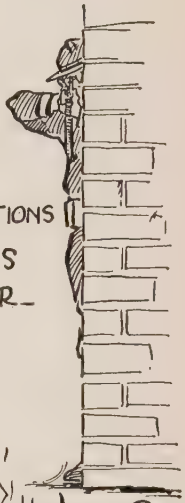
A-FIRING FROM WINDOW.

B-TARGET PRESENTED BY MAN FIRING AS SHOWN IN "A"

C-FIRING FROM DOORWAY

D-TARGET PRESENTED BY MAN FIRING AS SHOWN IN "C"





E-F-G-
SHOWING FIRING POSITIONS OF MEN USING TREES AND LOGS AS COVER.

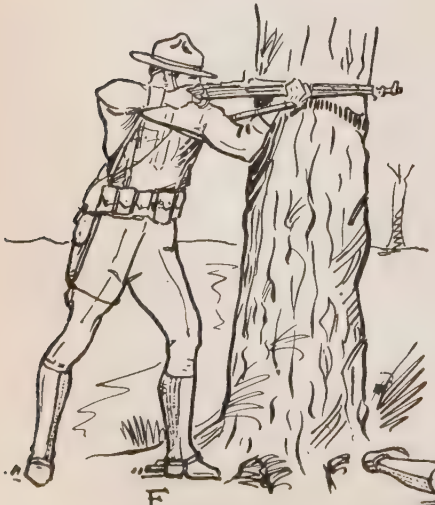


PLATE 20. Positions for Firing, Showing Use of Sling and Cover.

In combat the positions taught in rifle marksmanship are modified to suit the ground. Advantage is taken of roads, trees, or any other rest which will steady the rifle and make the fire more accurate. The sights must be aligned, the breath held, and the trigger properly squeezed, to make accurate delivery of fire possible. Prompt reloading is always necessary.

The loop sling is preferable except in the standing position, or in emergencies demanding *immediate* fire. The hasty sling is used in these cases.

Use of Cover. The importance of proper concealment and use of cover must be recognized. Each man must be thoroughly imbued with the idea that the advance of his unit and the effectiveness of its fire are of greater importance

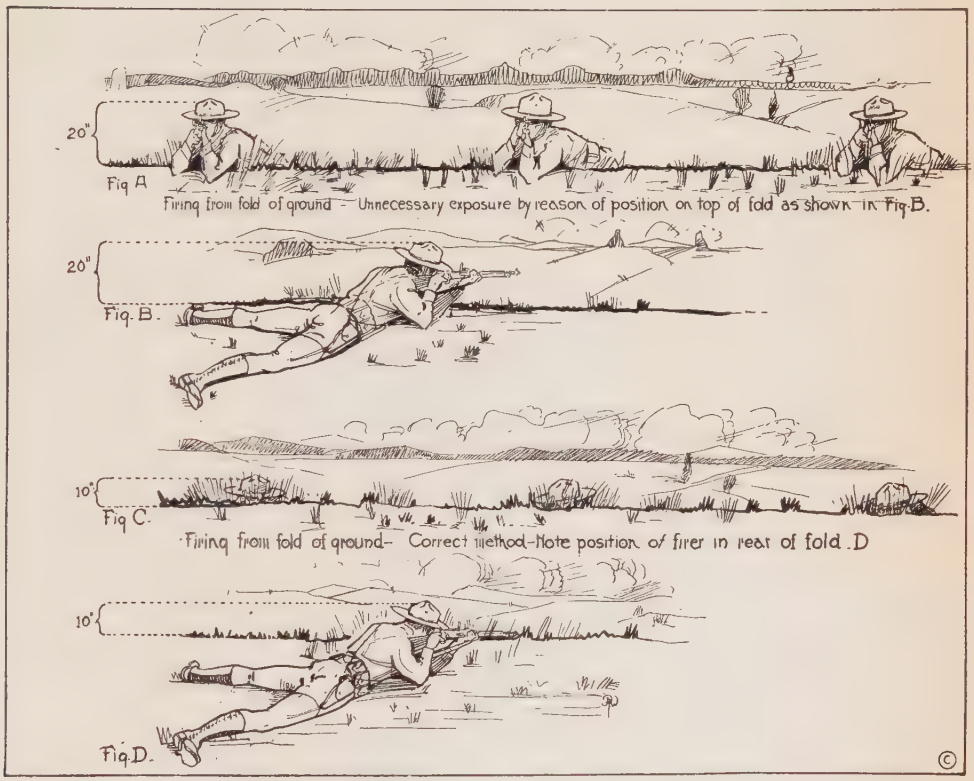

20"
Fig A
Firing from fold of ground – Unnecessary exposure by reason of position on top of fold as shown in Fig B.
20"
Fig. B.
10"
Fig C.
Firing from fold of ground– Correct method–Note position of firer in rear of fold .D
10"
Fig.D.
©

PLATE 21. **Positions for Firing, Showing Correct and Incorrect Use of Cover.**

than the question of individual cover, but he must be so trained that both when in position and when moving forward he will take every advantage of natural cover. The man who neglects the use of cover will soon be seen and exposed to fire. His unit not only loses the fire effect of one rifle but its position is unnecessarily disclosed, and other casualties may follow.

There are certain rules which govern the use of cover and they must be thoroughly impressed upon the men. These rules pertain to individual movement and the use of cover, and are fully discussed in Scouting and Patrolling. In Musketry they are the same, except that ability to see and fire on the target is of more importance than concealment or cover. As a member of a fire unit, the individual soldier must move and use cover to the fullest extent, but he must keep constantly in mind the necessity of being able to deliver effective fire on the enemy, and of moving as part of the squad and platoon team. It is to be remembered also that *fire superiority over the enemy* is the best protection, both

in attack and in defense. The use of cover by skirmishers in firing position is shown in Plate 21.

Observation of the Enemy. Observation of the enemy is necessary in order to note the effect of fire, take advantage of opportunity to fire on fleeting targets, and conserve fire power when targets disappear from view. By careful observation we can note the enemy's disposition and forestall his threats as well as take advantage of any apparent weakness which is observed in his line. This is primarily the duty of unit leaders and scouts, but is not confined to them alone. It is a part of the duty of all squad and platoon members to observe the target and call the attention of their leaders to anything significant, new or unusual.

Conservation of Ammunition. Economy of ammunition requires that only that amount of ammunition be used that is necessary to apply the most effective fire to the target. The soldier habitually fires at the rate most effective under the existing conditions as explained in the preceding chapter under Rate of Fire.

Every opportunity is taken to replenish ammunition. That of casualties should always be distributed amongst the other members of the squad. The time taken to collect and distribute such ammunition is negligible and the fire power it will later sustain may be the turning point of the fire fight.

Replacement of Casualties. In Musketry, the replacement of casualties is limited to the replacement of leaders and machine riflemen.

In particular, each platoon and squad must have a leader and the machine riflemen is his substitute, and thereafter any member of the squad who is qualified to operate the weapon. In case the squad leader should be absent he is replaced by the second in command. In the same manner the platoon sergeant replaces the platoon leader. The new squad leader designates a new second in command, the new platoon leader a new platoon sergeant. Squad leaders are responsible that the machine-rifle is kept in action as long as it can operate. The platoon leader and platoon sergeant are responsible for seeing that a substitute leader is designated for each squad, when necessary.

Replacement of casualties is the element of fire discipline which keeps the squad or platoon working as a team in spite of losses. It is one of the most important parts, as well as the severest test, of the unit's training.

Personal Initiative. In an emergency, or where control by the platoon leader is impracticable, the squad leader acts on his own initiative in carrying out what he believes to be the desire of his leader.

Similarly if any group of individuals find themselves without a leader, one of them must assume command and carry out their mission or attach the group to the nearest organized unit.

Each man must be willing to act intelligently and to the best of his ability, and to place his individual skill in firing at the disposal of his leaders. Even in the excitement and stress of battle, in the absence of orders or directions, he must be ready to act on his own initiative, and to use his skill to accomplish the squad or platoon mission.

Responsibility of Leaders.

Fire discipline in the squad is normally maintained by the squad leader, while in the platoon it is the duty of the platoon sergeant. Although the responsibility for fire discipline remains with the platoon leader, he must be free to devote his attention to the general control of his platoon, and observation of the enemy. It is for this reason that the platoon sergeant is expressly charged with maintaining fire discipline. He sees that the squad leaders properly perform their duties, and when necessary checks any breach of discipline, primarily through the leader of the squad concerned.

Questions.

Define fire discipline.

When does it start?

What principles does fire discipline embrace?

How are orders transmitted during a fire fight?

You are a scout firing on the enemy, your squad moves forward to the firing line. How do you give them the necessary information to enable them to fire effectively?

What restrictions are placed on the use of whistle signals?

How do you set your sights quickly?

When is the hasty sling used?

What casualties must always be replaced in the squad?

Who is responsible for the replacement of the machine rifleman?

Whose duty is it to enforce fire discipline within the platoon?

Do squad leaders ever act on their own initiative? If so, under what conditions and for what reason?

CHAPTER VI.

FIRE CONTROL IN POSITION.

Fire control is the regulation of rifle and machine rifle fire by squad and platoon leaders. It enables these leaders to bring the fire of their units to bear on the proper target in a minimum of time and to maintain effective fire thereon. The fire of a properly controlled squad or platoon, or any part thereof, can be shifted as the situation may require.

Fire control is essential to the effectiveness of fire. Without it the members of the fire unit cannot intelligently carry out the plans of their leaders. Uncontrolled fire is often worse than useless, as it discloses the unit's position to the enemy and wastes ammunition. No teamwork can be developed unless the fire of the individual is controlled, and as musketry is based on teamwork the importance of proper fire control is readily realized.

Formations While Firing. Before entering the fire fight the platoon is deployed in accordance with the principles of extended order. In a general way this deployed formation is retained while the platoon is delivering fire. The right squad remains the right squad and the left squad remains the left squad of the platoon. In the squad the men normally retain their original order from right to left. Conforming to the original formation to this extent avoids confusion and makes control easier.

Both when acting alone and when part of a platoon the squad is deployed in the same general formation, with at least five yards between men. This, however, is merely a working basis for deployment. The considerations which govern the positions of individuals in the squad area, and of squads in the platoon area, in combat, are:

Good field of fire to the front.

Use of cover and concealment.

An indefinite and inconspicuous formation which will be hard to see and hit.

Ability of squad and platoon leaders to control the fire of their units.

Character and direction of fire from the enemy.

Naturally it is not always possible to secure positions where there will be no conflict between these requirements, and it will be the duty of the unit leaders to make the best dispositions possible under the conditions which exist. The skirmish line of extended order drill may be a fairly straight and regular line, the intervals between men being approximately equal. This will seldom be the case when the section or squad is in combat, because such a formation is easily seen and hit by the enemy, usually fails to take full advantage of available natural cover, and is often a direct violation of the other requirements governing deployment in combat, as laid down herein. Platoon engaged in dismounted action with the enemy is shown in Plate 22.

Irregular Formations. The platoon leader generally occupies a certain area with his platoon, and assigns portions of that area to each squad in such manner that the squads will not be on line with each other. There is no attempt to make the intervals between squads uniform. There may, at times, be an interval of 50 yards or more between squads. Similarly within the squad the men avoid forming a line and the intervals between men are not generally uniform. On the other hand positions might be such that the interval between squads in the platoon and men in the squad would be fairly uniform. Conditions are never the same and the unit leaders must make their dispositions as the situation requires.

Positions of Leaders.

The Squad Leader. The squad leader must take a position from which he can best observe the fire of his squad, and properly direct its actions. Such a position will usually be in rear of his squad, near the center, and at a sufficient distance to allow him to hear and see, and be heard and seen by, the men on the flanks. In this position, and when employed in directing the fire of his men, the squad leader does not himself participate in the firing. Fire control and the maintenance of fire discipline are his primary duties. To fire himself is a matter of less importance which must not interfere with his primary duties.

It is of special importance that the flank squad leaders should properly direct and control the fire of the attached machine-rifleman. The deployment of the

PLATE 22. Platoon Engaged in Dismounted Action with the Enemy.

flank squads is such as to facilitate this. If conditions of battle make the control of the entire squad difficult or impossible, the leader should at least be able to control this important weapon.

The position of the squad leader in any case should be that which best fulfills the following conditions:

To see and be seen by each man of his squad.
To see the target and the terrain in its vicinity.
To see and be seen by his platoon leader.
To be covered from the enemy's view and fire.

The Platoon Leader. To control properly the fire of his platoon the platoon leader should take the position which best fulfills the following conditions:

To see and be seen by his squad leaders. (The squad leaders may be from 30 to 75 yards apart.)
To see the target and the terrain in its vicinity.
To see the platoon.
To be covered from the enemy's view and fire.
To be able to see to his flanks, and see the adjacent units.

The position which best fulfills these requirements will ordinarily be some distance in rear of, and near the center of the platoon. Exceptionally it may be on a flank. As no one position will in every case best meet each of these requirements, the section leader must exercise his judgment in selecting the one which is most favorable.

Exercise of Fire Control. Orders, Commands and Signals.

Squad and platoon leaders exercise fire control by means of orders, commands and signals. When there is a great deal of noise it will sometimes be necessary for the squad leader to crawl over to a man firing and grasp his ankle so that he will look around to receive the order or signal.

The platoon leader may utilize his platoon sergeant to assist in transmitting his orders to the squad leaders. Use may also be made of empty cartridge cases and small stones to attract attention of individuals beyond range of the voice.

The effectiveness of the platoon leader's control of the platoon will depend very largely on the alertness of the squad leaders in glancing frequently at the platoon leader for signals. At times when there is considerable noise and signals are to be expected, the squad leaders should glance at the platoon leader frequently.

The signals most frequently used in fire control in position are:

Range.	Suspend firing.
Fire at will.	Change targets.
Fire faster.	Are you ready?
Fire slower.	Marching fire.

These signals are described and illustrated in the course in cavalry drill. Other signals may be improvised when needed.

All the principles of range estimation, target designation, application of fire, and fire discipline are used to aid in fire control.

Fire control of the platoon is retained by the platoon leader as long as he is able to do so. The coordinated fire of three squads acting under the control of the platoon leader is more effective than the fire of the same three squads acting independently.

At times, due to heavy enemy fire or the great interval between individuals or squads, particularly in semi-darkness or smoke, it will be impossible for the platoon leader to control the fire of his entire platoon. This loss of control is to be recognized as a natural result of such conditions, and it will have no serious effect if the squad leaders are quick to take the initiative and carry on the plans of the platoon leader with their squads acting alone. Fire control by the platoon leader must be reestablished as soon as conditions will permit.

In the squad, fire control is exercised by the squad leader. In the platoon, fire control is exercised by the platoon leader assisted by the platoon sergeant.

The effectiveness of the platoon leader's control is largely dependent upon his squad leaders. Not being under the necessity of personally supervising the conduct of individual riflemen, the platoon leader, will often be able to note errors in range of direction which his subordinates closer to the line fail to detect.

Observation and Adjustment of Fire.

Having committed their units to the fire action the squad and platoon leader must continually observe the conduct of their fire units, the target, and the fire effect on both sides. They must constantly be on the alert for any evidence of improper adjustments of fire and take prompt measures to correct them. They must note any changes in the target, or new targets appearing in the zone of action and see that the fire of the unit is properly applied and adjusted thereto.

Errors in adjustment include:	Wrong direction.
Incorrect range.	Faulty distribution.

Incorrect Range. Range should be corrected by a new range designation. Often the platoon leader will desire to know the range that a certain squad is using. He employs the arm-and-hand signal. "What range are you using?" This information will often be necessary to check errors and give correct ranges.

Wrong Direction. If the platoon leader observes that fire is being applied to a wrong target he should at once check this waste of fire power by ascertaining which squad is in error, and correcting the same. This may be done by observation, or by crawling over to the squad leaders and checking the fire of the squad with them.

Physical or mechanical (tracer bullet) designation will usually be the best method of indicating the proper target. At times a signal to the squad leader, "Shift your fire to the right," will call his attention to his error, and the fire of the remainder of the platoon will indicate the proper target.

From his observation of the enemy and his grasp of the situation as a whole, the platoon leader should be able to perceive when fire should be shifted to a new target to meet new developments. Usually a shift of fire should be made a squad at a time, the new designations being conveyed successively to the squad leaders by order or signal.

Faulty Distribution. Incorrect distribution is frequently the result of incorrect target designation, or a designation not properly understood. A tracer bullet fired at each flank of the target by the platoon sergeant will re-outline it. The squad leaders should be always on the alert for such signals. If necessary the platoon leader calls their attention by using his whistle. If one flank of the target is not being covered, a tracer bullet fired at that flank, and a signal to the squad leader, "Shift your fire to the right," will correct this error in adjustment. Oral orders are given by the platoon leader moving over to the squad leader's position, or transmitting a message by a messenger. The limits of the target may be physically designated to the squad leader by the platoon leader or platoon sergeant.

Summary. Duties of Leaders in Fire Control.

The following summary of duties of leaders is by no means complete, as it relates only to their duties in Musketry. A complete discussion of the duties of leaders will be found in the course, Employment of Cavalry.

Duties of the Platoon Leader.

Carries out orders of troop commander.
Selects firing positions.
Determines ranges.
Designates targets and issues fire orders.
Controls fire of platoon.
Observes enemy and effect of fire.
Prevents exhaustion of ammunition.
Replaces leaders who are casualties.

The primary duties of the platoon leader relate to the enemy, and the most effective use of the fire power of his platoon.

Duties of the Platoon Sergeant.

Assists platoon leader, especially in the transmission of orders.
Maintains fire discipline.
Controls fire of rear portion of platoon during absence of platoon leader. (In an advance by fractions of the platoon).
Keeps on the alert for signals from platoon leader.
Replaces platoon leader when necessary.

The primary duties of the platoon sergeant relate to individual conduct and discipline in the platoon.

Duties of the Squad Leader.

Carries out orders of platoon leader.

Selects firing positions for squad.
Controls fire of squad.
Maintains fire discipline.
Observes enemy and effect of fire.
Keeps on alert for signals from platoon leader.
Participates in firing only in emergencies when the fire of his rifle is considered more important than supervision of the squad.

Questions.

What is meant by fire control?
Why is fire control so essential?
What considerations govern the positions of individuals in the squad area in combat?
How does the skirmish line in combat generally differ from that of extended order drill?
What is the position of the squad leader in combat? (Squad deployed).
What are the reasons for placing him at this position?
What is the position of the platoon leader in combat? Why?
How do squad and platoon leaders control their units in combat? Give examples.
Name and demonstrate eight signals used in fire control?
What is adjustment of fire?
How is incorrect range corrected?
How is faulty distribution corrected?
When it is impossible for the platoon leader to maintain personal control over all squads, who is responsible for carrying out his plans?
As squad leader how would you shift the fire of your machine rifleman to a new target?
What are the duties of the platoon leader in combat?
What are the duties of the squad leader in combat?

CHAPTER VII.

FIRE CONTROL DURING THE ADVANCE.

The Advance by Fire and Movement.

In the early part of the training in fire control the squad or platoon remains in position. Individuals move about when necessary but the unit as a whole does not advance. The unit acts as though in defense, or as it would during a pause in the advance.

In the attack the platoon or squad attempts to keep up a methodical advance while delivering fire on the enemy. This is known as *fire* and *movement*, and is the usual procedure in dismounted attack. Fire control during this advance is rendered more difficult by:

Distance between fractions of the fire unit.

Greater intervals between men (caused by requirements of cover).

In advancing the platoon is divided into a forward and a rear echelon separated by the length of the rush. The platoon leader helps to overcome this difficulty by going forward to control the fire of the forward portion of the platoon leaving the second-in-command, the platoon sergeant, to control the fire of the rear portion.

The same is true in the squad, the squad leader always going forward with the first half of his squad, leaving the second-in-command to control the fire of the remainder and bring them forward at the proper time. As the platoon leader controls his squads through the squad leaders, with the assistance of the platoon sergeant, it can readily be seen that when the platoon is advancing by fractions, squads or parts of squads, this matter of control becomes increasingly difficult.

Building Up the Firing Line. The fire fight is usually opened by the scouts who, in approach formation, are well in advance of the platoon. When the scouts come within sight of the enemy or are fired on, they naturally seek cover and select a position from which they can observe the enemy, and if conditions so indicate, return his fire. When the platoon leader has determined upon his plan of action he communicates it to his squad leaders. This plan is based upon the fact that his scouts have been compelled to halt by enemy fire, or upon his personal reconnaissance in case no fire has been opened and his scouts are merely in position watching the enemy. We shall consider the platoon to be under fire, and that the platoon leader has decided to build up his firing line upon the line of scouts. Under such conditions the remainder of the platoon would move forward to this position by infiltration so as to give the enemy as poor a target as possible.

Advance by Infiltration. In each flank squad the machine rifleman goes forward first, followed by the carrier, and then the squad leader, followed by another rifleman. The second in command sends forward the remainder of the squad, coming up last himself. The men work in pairs in the infiltration to the line of scouts, but only one man in each squad is moving at a time. Thus, one man moves forward at a run 20 to 30 yards and throws himself on the ground in a position of concealment as taught in Scouting and Patrolling. The instant he hits the ground, the other member of the pair is up and running forward to a position 5 to 10 yards beyond. As the second man drops down, the first is up and moving forward as before. They continue these "leap-frog" tactics until the firing line is reached. The squad leader halts in rear of the line in a position from which he can best control his squad. The remainder

of the squad moves forward in the same manner until all are deployed in position on the firing line. Each squad in the platoon moving forward in a similar manner means that only three men in the platoo nare in motion at the same time, thus presenting a very poor target for the enemy's fire.

The machine rifle is sent forward first because it is important to secure its fire power. By getting it on the firing line at once we can engage the enemy with over half of the fire power of the squad. The scouts are already on the line and a machine rifle has the fire power of four to six rifles. This will cover to a great extent the advance of the remainder of the squad.

The squad leader comes next so that he will be in a position to control the fire of his squad, half of whom are now on the firing line, and observe the effect of their fire on the enemy. The second in command coming last insures that all men go forward, without straggling.

The platoon leader, if not already forward with the scouts, usually moves up just after the machine riflemen, to a position where he can control his platoon,

PLATE 23. Platoon Moving Forward to Line of Scouts by Infiltration. Dismounted Action.
The sergeant file closer and two men from each squad are not shown. Presumably they are to the rear, under cover, as horse holders. A machine rifle is with each flank squad.

observe the enemy and the effect of the platoon's fire. The platoon sergeant coming last insures all men coming forward.

As the men come on the line, the scouts pass on the range to them and designate the target as laid down in Chapter II. They in turn pass the range on to other men as they arrive. The corporal sees that all men get the correct range and open fire on the target as quickly as possible. From his observation of their fire he makes any changes necessary or passes on to his men the corrections of the section leader.

Advancing the Firing Line. A steady advance of the firing line with the constant threat of personal contact, is usually necessary to drive the enemy from his position. After the platoon is in firing position, engaged with the enemy, the advance is made by short rushes of from 20 to 40 yards, by squads, by four men, or by two men, depending on the strength of the enemy, the terrain, and the effect of our fire. In moving forward by rushes the platoon

leader communicates to his squad leaders the size of the fraction to move forward. This must usually be done by signals and squad leaders must glance towards the platoon leader frequently to insure receiving orders without delay.

Mechanism of the Advance. *Squad rush.* In advancing the firing line, movements are always made from one flank or the other as a safety precaution to prevent men "blanketing" the fire of their own units and thus being in danger from friendly fire. When a squad rush is made, the leader of the squad concerned must give the command ***CEASE FIRING,*** and wait until the men have had time to load and lock their pieces, lower the sight leaf, and look forward. During this time the squad leader is looking forward in an endeavor to locate the next firing position. He then commands ***Prepare to rush*** and gives them sufficient time to gather themselves for a quick get away from their prone position, by drawing the arms in slowly, keeping the elbows close to the ground. Springing to his feet he commands ***UP*** or ***FOLLOW ME,*** and leads the rush. The men spring up quickly, raising the body by straightening the arms, throwing the weight of the body to left leg and arm, and bringing right leg forward, jumping off to the right front (as taught in extended order drill). Even while rushing the squad leader must be looking forward for a new firing position, usually about forty yards from the point at which the rush started, and as he arrives at the selected place he gives the command ***DOWN.*** The men throw themselves on the ground by dropping forward on the outside of the left knee and at the same time extending the rifle, grasped in both hands and held vertically, so that the butt strikes the ground at full arm's length directly in front of the left knee. (See extended order drill). Pivoting on the left knee and the butt of the rifle they roll forward into the firing position, with the rifle at the shoulder.

Procedure upon reaching a new position. As soon as the squad has reached the new firing position they open fire on the target, continuing their method of distribution as if it had not been interrupted. The squad leader must be especially careful after a rush to see that the men are using the proper sight setting and that they have identified the target from this new position. Sights must be checked, because of the liability of their getting loosened during the rush, but primarily because of the decreased range. It will not be necessary to change the sights for every rush. Accuracy in sight setting is more important at the longer ranges than at close ranges. At ranges beyond 500 yards it is advisable to change the sight setting every 50 yards. For ranges between 500 and 300 yards a change every 100 yards will be sufficient. For ranges under 300 yards it will seldom be advisable to change the sight setting, as most rifles require a very little change in sight setting for ranges under 300 yards. Sight changes are habitually made after the rush, although the squad leader may direct that they be made before the rush, for good reasons, such as poor cover in the new positions in comparison with that in the old. Not more than two men of the squad cease firing to change their sights at any one time.

Positions reached by rushes under fire are very hurriedly occupied and there is danger that men seeking good cover and concealment from the enemy will become equally well concealed from their own leaders. The fire of such men is not subject to control. The squad leader notes the position taken by each man in his squad and for himself selects a position from which he can see all, or as many as possible, of his men. If there is then any member of the squad who cannot see the squad leader, this man changes his position until he is able to do so. In this way the fire control of the squad is maintained.

Two- and four-man rushes. The mechanism of four-man and two-man rushes is the same as that of the squad rush. The platoon leader indicates to the right (left) squad leader that he is to start the advance and designates the size of the fraction he wishes to go forward, by holding up two or four fingers (an improvised signal). We shall take for example the right squad. The

platoon leader signals the squad leader to send his squad forward by two man rushes. The squad leader repeats the signal back, then commands, ***First two men on the right*** (or calls them by name), ***CEASE FIRING.*** He waits a moment and commands, ***Prepare to rush,*** another pause and, ***UP.*** The men spring up and rush forward twenty to forty yards, picking out their own firing position, if it has not been indicated to them by the squad leader. They open fire at once, and as the other men come forward aid them in picking up the target.

In two-man rushes, the moment the first two men start their rush, the next two cease firing in order to be ready to spring forward the moment the first two complete their rush. In four-man rushes, the second half of the squad cease firing as the first half complete their rush and, move forward as the first half open fire, while in squad rushes, the second squad to rush does not cease firing until the first squad has taken up the fire from their new position.

PLATE 24. Platoon Advancing in Dismounted Action by Four-Man Rushes.

Positions of Leaders During the Advance. In both two- and four-man rushes the squad leader goes forward with the second pair or leads the rush of the first four (himself and three others). The second-in-command goes forward as one of the last pair or leads the last half of the squad.

The platoon leader usually moves forward to the new firing line with the second squad when the advance is being made by squad rushes. When the advance is by two- or four-man rushes he will move forward with some portion of the second squad.

The platoon sergeant remains with the rear portion of the section, controlling its fire and its advance, in place of the section leader. He is the last man to move forward, thus being in a position to prevent straggling.

Increased or Diminished Intervals. In the advance the interval between men is often increased and sometimes diminished by the endeavor of each man to secure cover for himself at each firing position. As a general rule they will not be able to secure both good cover and good fire positions, in which case cover must be sacrificed for a good field of fire. As stated in the preceding chapter the skirmish line in combat is not regular, the intervals between men and between units varying with circumstances. Thus three or four men may be firing from behind a log and the remainder of the squad be scattered over twenty

or thirty yards. The task of the squad leader under such conditions is greatly increased as he may have to crawl from one man to another in order to make any necessary corrections and to convey orders for the advance.

The same circumstances frequently make direct control of all squads by the platoon leader impossible. Under such conditions the squad leaders will have to act on their own initiative and conduct their portion of the fire fight as they consider the platoon leader would direct. However they must neglect no chance to communicate with the platoon leader and bring their squads back under his control at the first opportunity.

Fire Control during the Advance. Fire control during the advance is a much more severe test of training in all the principles of musketry than is fire control in position. The added factors of movement, distances between fractions, and increased intervals caused by scattered cover, as well as the constantly decreasing range, require not only thorough training of the leaders and men in musketry, but an esprit which makes them "carry on" in spite of reverses.

In addition to the arm-and-hand signals used in fire control while the unit is in position, the following are used during the advance and relate to the control of movement:

As skirmishers.	Quick time.
Forward.	Assemble.
Double time or Rush.	Squad.
Halt.	Platoon.
Down.	Column.

The signals are described and illustrated in the course in Cavalry Drill.

The Assault. The final stage of the advance is the assault of the enemy position. It may be that our fire has driven him from his position and our advance will result in his withdrawal. On the other hand in a wholly dismounted attack, he may have merely kept under cover and will be prepared hotly to resist our final advance. In the latter case marching fire, as explained in Chapter IV, will be used to keep him down until we come to the final rush. It will be recalled that the dismounted cavalryman has no bayonet. He depends in the assault upon rifle and pistol fire. The shock action of pistol fire at short distance is considerable.

Questions.

What conditions make fire control more difficult in the advance then while stationary?

When does the squad leader go forward moving to a new firing line? Why?

When does the platoon leader go forward? Why?

When does the platoon sergeant go forward? Why?

You are halted by enemy fire with your scouts in position some distance in advance. The platoon leader signals you to move your squad forward, under fire, to the line of scouts. How do you do it?

Why should the machine rifleman be the first man to go forward?

With firing line once established, how is the advanced continued?

Explain the mechanism of advancing by four-man rushes in a platoon dismounted attack.

Why does an advance start on the flanks of the platoon?

What chances are made in sight setting during the advance.

How are firing data transmitted to men arriving on the firing line?

What is the signal for squad rush? Two-man rush?

What should the squad leader do when his squad is no longer under control of the platoon leader?

What precautions are taken in the squad to prevent a cessation of fire when changing sight setting.

CHAPTER VIII.

LANDSCAPE TARGETS.

Description and Advantages. In its simplest form a landscape target is a panoramic picture of a landscape, of such size that all or nearly all of the features of the landscape can be seen by the firers at a distance of 1000 inches. (See Plate 25.) Standardized sets of landscape targets have been prepared, and are issued by the War Department. For convenience in handling and storing these targets are divided into sheets about 2 feet high and 5 feet wide. Series "A" has five sheets, "B" and "C" three sheets each.

After the soldier has completed the rifle marksmanship course and has been given the preliminary work in musketry, including range estimation and target designation, some time may be spent to good advantage in landscape target firing. Here his target is changed from a black bull's-eye on a white paper, or a silhouette, to a picture of terrain similar to that at which he will later fire in his musketry and combat training. These targets do not require a long range (which often is not available) and they permit the application and distribution of fire to be shown in a simple manner and in the minimum amount of time. The recording sheets register the hits so that the observer may at once see the character and effect of the fire. The necessity for marching several hundred yards to inspect a target covering considerable ground, or the telephone connection between firing line and target, entirely eliminated. These targets are especially useful when terrain is not available for a class B range. They may be set up in an armory or shooting gallery.

Targets on the pictured landscape may be designated as they are on actual terrain and may be fired upon by a squad using point blank range. The objection to this simple use of landscape targets is that while pictures in color are best for target designation and aiming, they are too expensive to use as recording targets where they will be damaged or destroyed by the firing. In order to overcome this latter objection and still retain the advantages of the colored target a method has been devised whereby we can designate our target and locate our aiming point on the colored landscape targets, and cause the bullets to strike on black and white targets, placed above the colored targets. This is called "harmonizing" and will be explained later.

The colored sheets are known as the target sheets, and with each set are furnished several sets of the corresponding recording sheets, showing the same landscape in black and white. These latter are the same size as the target sheets, of the same width and slightly higher. On the recording sheets is printed in black the outline of the landscape on the corresponding colored sheet. These target sets are furnished to organizations and institutions by the Ordnance Department on requisition. If they cannot be obtained "home-made" targets may be prepared by anyone having a little artistic ability and ingenuity.

Preparation of the Targets. The sheets are mounted on frames made of 1″ x 2″ dressed lumber, with knee braces at the corners. The frames are usually made 59″ wide and 24″ high for the target sheets and slightly higher for the recording sheets. The frames are then covered with "target cloth" tacked to their edges. It is better to paint the frames, though not absolutely necessary.

The colored (target) sheets are then mounted as follows: Dampen a cloth with a thin coat of flour paste and let it dry for about an hour. Apply a coat of paste similarly to the back of the paper sheet and let it dry about half an hour. Place the frame on some surface to prevent the cloth sagging. Apply a

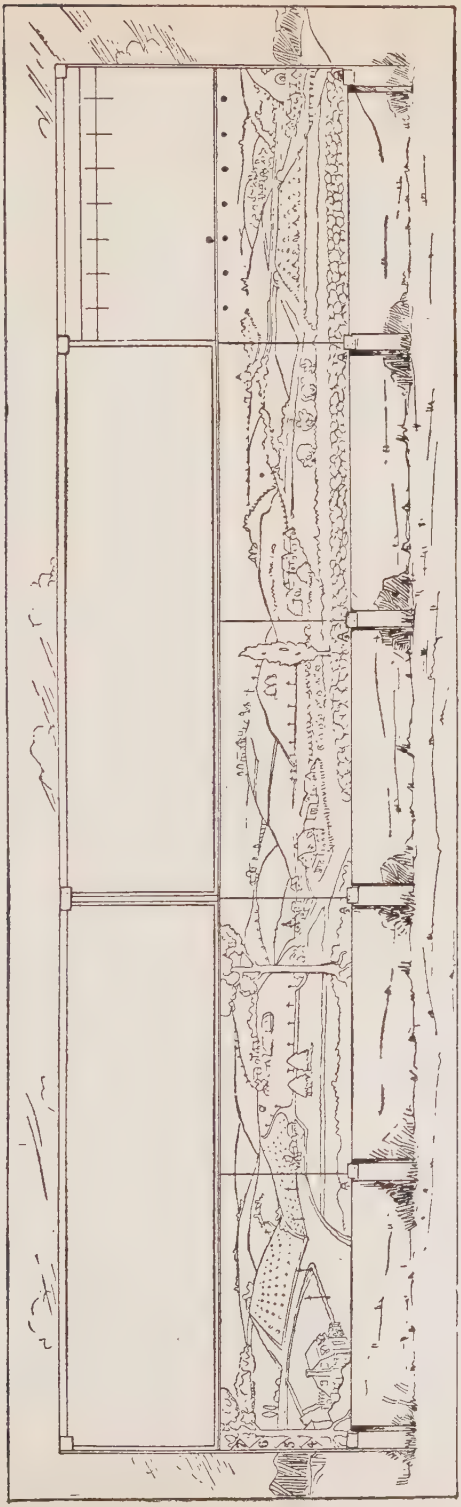


PLATE 25. Landscape Targets Ready for Use.

second coat of paste to the back of the paper, and mount it on the cloth, using a wet brush or sponge to smooth out wrinkles from the center to the edges. The recording sheets are not pasted, but merely tacked to their frames.

These panels are then mounted on a vertical frame consisting of 4″ x 4″ posts of sufficient height, placed upright in the ground, 5 feet center to center, with horizontal pieces of 2″ x 4″ to support the small frames, and the necessary braces to insure stability. The small frames are supported by cleats and dowels (to allow easy removal). The recording panels are placed above the colored panels. care being taken that the tops of all frames are on the same horizontal line, and that the recording targets are so placed that every point on the recording target is exactly the same vertical distance above the corresponding point in the colored target and on the same vertical line with it. The distance is 23 inches. This can be done with a plumb-bob and a 2-foot ruler or by using a carpenter's level upon which the distance (23 inches), between corresponding points on the aiming and recording targets, has been marked.

The colored (aiming) panels having been placed on the frame as shown in Plate 25, the recording (black and white) panels are placed above them (these latter do not show in Plate 25). As the black and white targets are attached to their panels by tacks (preferably thumb tacks), it is an easy matter to shift their position slightly until they are exactly placed with reference to the colored sheets below them. This is a task which must be carefully and accurately accomplished or the results of the shooting will be of little value.

The recording panels, except the one on the extreme right, are then covered by screens of target cloth as shown in Plate 25. The right hand recording panel (No. 5) is replaced by a "harmonizing" panel in preparation for harmonizing rifles. This "harmonizing" panel consists of a frame of the same dimensions as the recording frames, but covered with white paper in place of a recording target. Upon this panel is drawn a black line 23 inches above the line of seven small bull's eyes which are pasted along the upper edge of the right hand (No. 5) colored (aiming) panel. (See Plate 25.) Directly above each bull's-eye, this harmonizing line is crossed by a short vertical line called the "windage line." The harmonizing panel adjusted, we are ready to commence "harmonizing" the rifles.

Harmonizing the Rifles. If the sights of the service rifle are set at 1300 yards a shot fired at a point on a target 1000 inches away (the range used for landscape target), will strike about 23 inches above the point aimed at. In order to counteract the drift correction caused by setting the sight at 1300 yards, it is also necessary to set off one point right windage for the 1000 inch range.

The squad is deployed on the firing point, squad leader in his proper position in rear of the squad. The instructor has each man set his sights at 1300 yards and take one point right windage. Squad leader checks each man to see that this is done.

The instructor then assigns each firing member of the squad the black paster (bull's-eye), along the upper edge of No. 5 colored panel, corresponding to his position in the squad. The squad leader makes sure that each man understands which is his paster.

Rifles are loaded at command of instructor and each man fires one shot at his paster at the instructor's command ***FIRE AT WILL.***

The instructor then commands ***OPEN BOLTS,*** the squad leader checking all men to see that this is done. Then he and the instructor inspect the harmonizing panel and give each man the necessary corrections to bring his next shot to the intersection of the harmonizing line and windage line, *i. e.*, "Up 25, left 1 point, etc."

Note: At a distance of 1000 inches the point of impact of a bullet is moved 1 inch for each 25 yards change in elevation and 1½ inches for each point change in windage.

Rifles are loaded and one shot fired as before. Hits are checked and corrections made until all rifles are harmonized, *i. e.*, their shots hit the intersection of the lines above their respective bull's-eyes. The harmonizing panel may now be removed and No. 5 recording panel placed in position, with a screen of target cloth over it.

Landscape Target Firing.

We are now ready to commence firing on the landscape targets. All members of the squad except the squad leader are faced to the rear. The instructor takes the squad leader to the panels and points out the target to him. In this case it will be a machine gun between the two large haystacks shown in Plates 25 and sure that each member understands the designation. A designation for the squad, the instructor acting as advisor.

The squad is faced to the front and ordered to load, rifle 5 rounds, automatic 20 rounds. The target is then designated, verbally, by the squad leader, making sure that each member understands the designation. A designation for the target used in this case would be:

Range: (See Post).
Reference: Two large haystacks to left front.
Target: Machine gun between stacks.

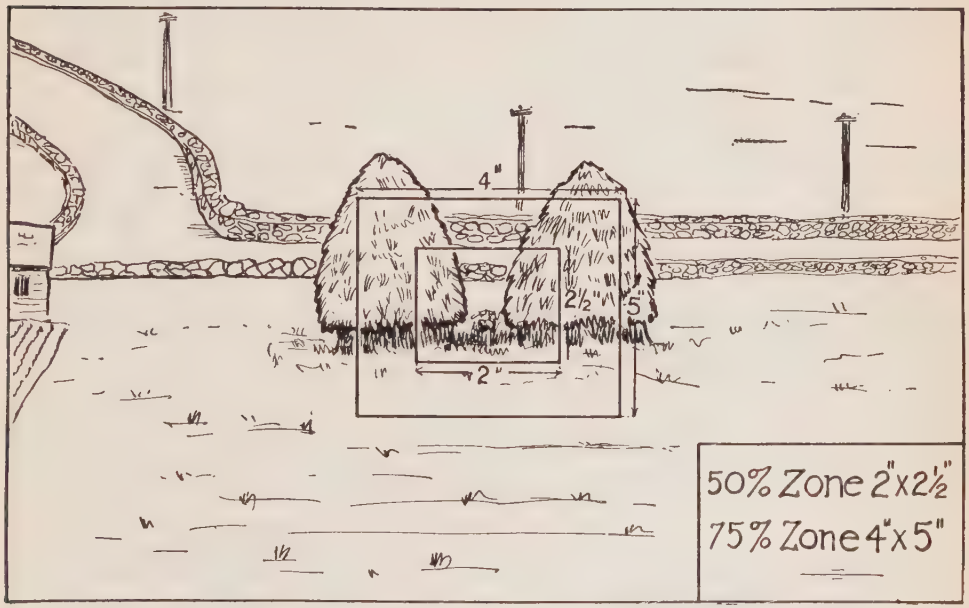


PLATE 26. Concentration Target, 50 per cent and 75 per cent Zones.

To complete the fire order the squad leader adds ***FIRE AT WILL.*** (The range is of course assumed in designations for the landscape target.)

At the end of two minutes or such time as the instructor may designate, the squad leader commands, ***CEASE FIRING; OPEN BOLTS.*** The squad is then taken forward to examine the target and see the effect of their fire.

In the case just cited the target selected was one upon which concentrated fire was used. We shall now select one upon which it will be necessary to use distributed fire, as an enemy skirmish line concealed back of the second stone wall to the left front.

This is indicated to the squad leader who designates it to his squad. A designation for it would be:

Range: ———.

Reference: Tall pine to front; extending left 3 sights behind center stone wall.

Target: Enemy skirmish line.

The leader completes his fire order by the command, ***FIRE AT WILL.*** The men open fire, using the normal method of distribution, each man firing his first shot at that part of the target corresponding to his position in the squad. (See method of distribution.)

After the command ***CEASE FIRING; OPEN BOLTS*** has been given, the squad goes forward to examine the target. The proper distribution or lack thereof is quickly apparent and its necessity can be easily shown.

The instructor should always hold a short critique after each exercise to comment on the target designation given and the effect of the fire delivered.

Recording Sheets. 50 Per Cent and 75 Per Cent Zones. In order to give each squad some visible proof of its progress in training, to build up a spirit of rivalry between squads, and to enable the company commander to grade the work at the end of each day's firing, small recording sheets are used. See Plates 26 and 27. These may be prepared in several ways in advance. A tracing of that portion of the target desired to be used in a particular problem may be made on a rough piece of paper or even an old newspaper. A stencil may be prepared on which a portion of the target is cut to exact proportions and a supply of small recording sheets printed on the mimeograph machine. A tracing on tracing cloth may be made and copies prepared by blue printing. It is advisable to

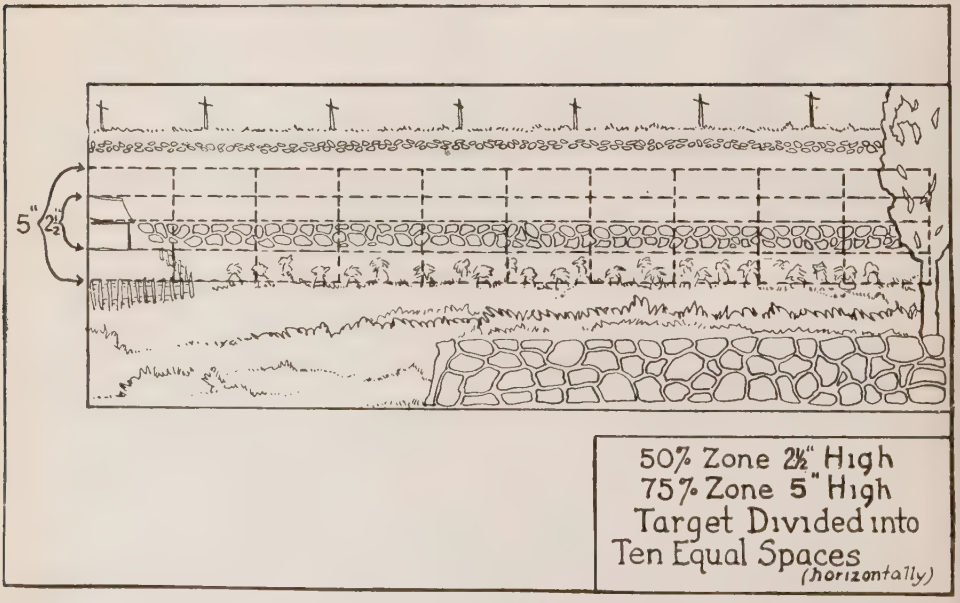


Plate 27. Distribution Target, 50 per cent and 75 per cent Zones.

cut on the stencil or draw on the tracing cloth the 50 per cent and 75 per cent rectangles. The **50 per cent rectangle** is 2½ inches high by 2 inches wide; the **75 per cent rectangle** is 5″ x 4″. These represent the 50 per cent and 75 per cent shot groups to be expected from average shots firing at 1000 inches at a definite point, and are proportional to corresponding shot groups at long ranges. In case the target be one for distributed fire (lineal target) the **50 per cent** and **75 per cent zones** are indicated by drawing lines parallel to the target, above and below, at 1¼ inches for the 50 per cent zone and 2½ inches for the 75 per cent zone. In the former, the zone extends 1 inch beyond each end of the lineal

target, and in the latter 2 inches beyond the ends. This zone is then divided into 10 equal parts. (See Plate 27.) A wire frame may be made conforming to the above dimensions and the zones indicated after firing has been completed by applying the frame to the target on the recording sheet. These small recording sheets are placed on the recording panel directly over that portion to which they correspondent, which will also be 23 inches above the portion of the colored panel desired to be used as a target. After firing has been completed the small sheets may be removed, graded and posted on the bulletin board in order of standing. A spirit of competition and rivalry at once enters into the work.

Assumed Ranges. Range estimation being an element of target designation, assumed ranges must be used on the landscape targets. These ranges are indicated by small cards on which are printed numbers. These are tacked on both edges of the colored target. (See Plate 25.) The squad must be cautioned that the sight setting found necessary to harmonize their rifles must not be changed and the assumed range given is for target designation only. Unless this is done the colored panels will probably be shot up and rendered unfit for future use.

Scoring. *Concentration.*

No. rounds fired 50
Value of each hit within 50 per cent zone 2
Value of each hit within 75 per cent zone 1
Sum of value of hits within the two zones equals grade for concentration.

Distribution.

No. rounds fired 50
Target divided into 10 equal scoring spaces, value of each is 10.
No. of spaces struck X 10 equals grade for distributing hits over target.
Value of each hit in 50 per cent zone 2
Value of each hit in 75 per cent zone 1

The sum of the grade for distributing hits over the target and the value of all hits within the two zones equals final grade for distribution.

Final grade for landscape target firing is obtained by averaging grades for concentration and distribution.

Sub-Caliber and Indoor Work. Landscape targets may be used to advantage in an armory or indoor range and for this reason are especially valuable in R. O. T. C. and National Guard training.

It is a comparatively simple matter to "harmonize" .22 caliber rifles or .30 caliber rifles firing a reduced load, for use with these targets. By using a few of the best shots the necessary sight settings and corrections for the rifles can be determined beforehand and given to the class when firing.

The principles of range estimation, target designation, rifle fire and its effect, fire discipline, and fire control can be taught indoors, any place where a backstop can be constructed. The scouts advancing to the firing point can discover the enemy, the remainder of the squad moving forward to the line of scouts by infiltration and taking up the fire on the target as indicated to them by the scouts. The squad leader controls the advance and the fire exactly as he would in the field. The results of the firing can be shown to the squad and errors pointed out with less loss of time than in the field.

These targets can also be utilized in the classroom for target designation and range estimation. In order to insure a uniformity in "sights" it is best to mark off six-inch intercepts along the top of the panels and use them for "sights." Range numbers tacked along the edge of the panels are used as explained in a preceding paragraph for range estimation.

Care of Targets. The targets must never be exposed to the weather. When not in use they should be stored under cover, safe from rats and vermin. The target sheets may be mounted on heavy cardboard in place of canvas covered

frames, but it is a much less satisfactory arrangement, especially for the recording panels.

Questions.

Describe the landscape targets.

What advantages do landscape targets have over field targets for teaching distribution of fire?

What is meant by "harmonizing" rifles.

What are the windage and elevation corrections for landscape targets?

Give a fire order for target consisting of an enemy sniper located behind bush at left of roadfork in Panel No. 1. (Give fire orders for various other targets.)

Give a fire order for target consisting of enemy skirmish line extending half way across field to the right from bend in road in Panel No. 2.

How may shot groups on landscape targets be compared?

What is meant by 50 per cent and 75 per cent zones?

How are ranges shown on landscape targets?

After rifles are harmonized are sight settings changed? Why?

PRACTICAL EXERCISES.[1]

Exercise 1. Demonstration. Effect of Errors in Range Estimation. *Purpose:* To show the effect of errors in estimating the range.

Equipment: Expert rifleman, with rifle. 60 rounds of tracer ammunition. 3 silhouette targets.

Procedure: Place silhouette targets at ranges of 300, 500, and 700 yards. Have an expert rifleman fire five shots at target 1 (correct range 300 yards). Have same man fire 5 shots at the same target with a sight setting of 100 yards. Point out the effect of error in range and compare with the table (ante). Have the same man fire 5 shots at the same target with a sight setting of 500 yards. Point out the effect of error in range estimation.

Repeat this procedure for the other two targets.

Exercise 2. Range Estimation. *Purpose:* To familiarize the student with the appearance of the unit of measure—100 yards.

Equipment: None.

Procedure: The "hundred yard ruler" is staked out over varied ground, that is, on level, sloping, and rolling round. Red or white flags may be used as markers.

The students are required to become thoroughly familiar with the appearance of this unit of measure on these various kinds of ground and at different distances from them. They do this by moving away from, and in prolongation of, the lines staked out and studying the appearance of these various "rulers" from distances of 100, 200, 300, 400 and 500 yards.

Exercise 3. Range Estimation. *Purpose:* To illustrate application of the unit of measure.

Equipment: Pad and pencil for each member of class.

Procedure: Ranges up to 1000 yards are measured accurately in a continuous line, and marked at every hundred yards by large markers or target frames, each bearing a number to indicate its range. (See Plate 28.) Have a man stand alongside of each marker.

Students undergoing instruction are placed about 25 yards to one side of the initial point from which the ranges have been measured. They are instructed to hold their hats or some other object before their eyes so as to conceal from view all the markers.

They are then directed to apply the unit of measure five times along a line in the general direction of the line of markers. When they have selected the final point by mentally applying the "hundred yard ruler" to the ground five times,

[1] NOTE. Since R. O. T. C. units are not yet equipped with machine rifles, the automatic rifle, which is the same weapon mechanically, is referred to in these exercises.

the eye shield or "binder" is removed, and the estimation of the successive 100 yards points and the final point are checked against the markers. Apply ruler to the distance to various objects near line of markers, checking each estimation of range by the markers.

The men standing beside the markers are caused to kneel and lie down by means of pre-arranged signals. Their appearance at different ranges and in different positions aids materially in selecting the half-way point for ranges of over 500 yards.

Ranges greater than 500 yards are then considered. Concealing the markers in the same manner as before, the student picks out an object in the same general direction as the line of markers and which is obviously over 500 yards distant. Selecting a point which he estimates as midway to it he applies the "ruler" and doubles the result. Then removing the "binder" he checks up the half-way point, the hundred yards points, and the final point, with the line of markers.

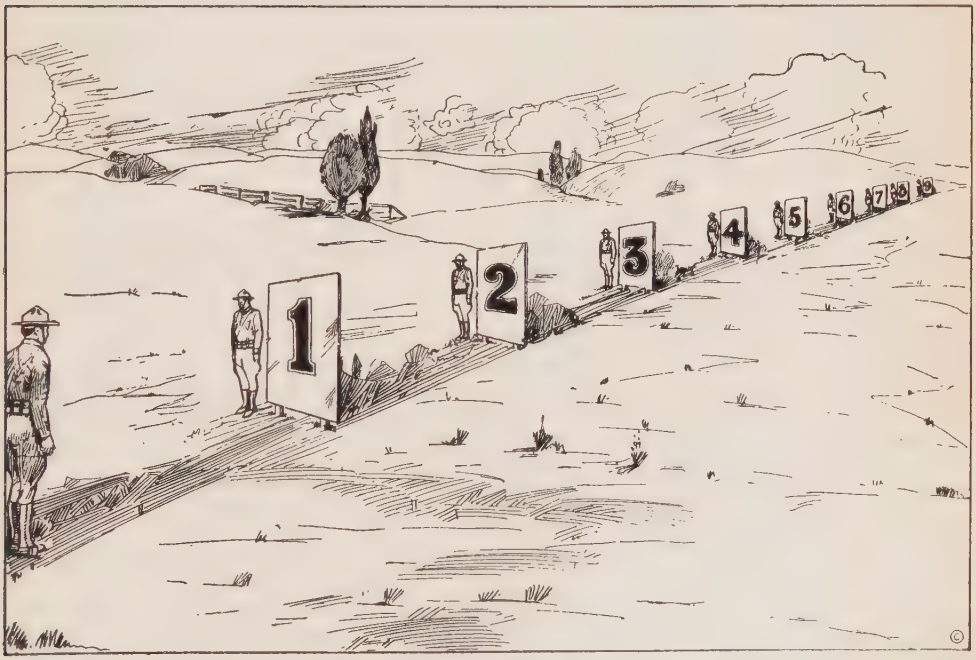


PLATE 28. Setup for Instruction in Range Estimation.

Accuracy is gained by repeating these exercises. Prone, kneeling, sitting, and standing positions should be used so that the student's estimates will not be effected by his position.

Exercise 4. Range Estimation. *Purpose:* 1. To apply a correct method of range estimation.

2. To show the accuracy of averaged estimates.

Equipment: Pencil and pad for each member of the class.

Procedure: Divide the class into squads and platoons each with a leader. Select a prominent feature of the terrain, not over 500 yards distant, and cause each member of the class to estimate the range and record same on his pad. One minute will be allowed for this.

Cause each squad leader to average the individual estimates of his squad and record on his pad. Then cause each platoon leader to average the estimates of squads. Average the estimates of the platoons.

Announce the true range, and have the 100-yard division points marked by flags. Let each man check his own estimate and note his error.

Compare individual, squad, platoon and total estimates. Point out that in general the average estimate of a platoon will be closer to the truth than the average estimate of a squad, and that the average estimate of the entire class will be closer than that of any squad or platoon.

Exercise 5. Range Estimation. *Purpose:* To apply a correct method of range estimation.

Equipment: Pencil and pad for each member of the class.

Procedure: Place two flags 100 yards apart. Look at this distance from different angles and then from different ranges. Note how it appears when looking up hill and looking down hill.

Select an accessible area and pick three or four places as observation points. Lay off from each point ranges to ten objects (flags, targets, etc.). These should vary from 200 to 1000 yards. At the first point stake off the 100-yard divisions for each range.

Move the class to observation station No. 1, review carefully the method of estimating ranges. Estimate range No. 1 from this point. Have the estimates recorded, then send a man to each 100-yard division. Have the class check their estimates. (Note: This range should be under 500 yards.) Repeat for other ranges. (Last 5 should be over 500 yards.) Have man mark half way point in each case where the range is over 500 yards.

Proceed to stations Nos. 2, 3, and 4 and record ranges at each as at station No. 1.

Announce correct range after each estimation. Do not check up on 100-yard division points, but discuss each range and be sure that the students are applying the prescribed system of range estimation.

Exercise 6. Test. Range Estimation. *Purpose:* To determine the proficiency of the class in range estimation.

Equipment: Pencil and pad for each member of the class.

Procedure: At a signal from the instructor a group of men suddenly appears at some point of the terrain. They remain visible for ten seconds. The members of the class are required to make and record their estimates of the range to this group within 30 seconds of the time the group first appears.

In like manner cause the class to estimate and record ranges to 10 or more points indicated by trees, flags, individual men, targets, etc.

Each member records his estimates on his pad, signs his name and turns the sheet in to the instructor.

The instructor determines each student's score for each estimate from the table given in Range Estimation. The total score of each student is then found, and the class arranged in order of proficiency as determined by the test, thus:

Student's estimate.	Correct range.	Score.
900	950	78
850	900	80
800	850	82
700	700	100
500	600	69
	Total score.....	409

Exercise 7. Demonstration. Target Designation. *Purpose:* To show the use of tracer bullets as a means of target designation.

Equipment: Squad or platoon with rifles, 15 rounds of ball ammunition to each rifleman, 3 loaded magazines to each automatic rifleman. One E target, one red flag.

Procedure: On a target range a concealed target representing a machine gun is placed near a pit or other bullet proof shelter. About 500 yards in front of the target a firing position for a squad or section is selected. Position of target will be visible from firing point, but the target itself shall be concealed by natural cover in order not to attract attention.

The squad or platoon is deployed along the firing position and all except the scouts are faced to the rear.

The scouts take the prone position and are told that the waving of a red flag to their front represents the firing and smoke of a machine gun.

A man stationed in the pit waves a red flag exactly in front of the target for 30 seconds and then takes cover in the pit.

The squad or platoon is faced to the front, and all take the prone position. Rifles are loaded, scouts using tracer ammunition and the others ball.

Scouts announce range, which is passed along from man to man, caution "watch my tracers," and point out the target with tracers.

As soon as each man has set his sights and understands the location of the target he opens fire.

Instructor causes firing to cease after an allotted time. Sight settings are checked and target examined for hits.

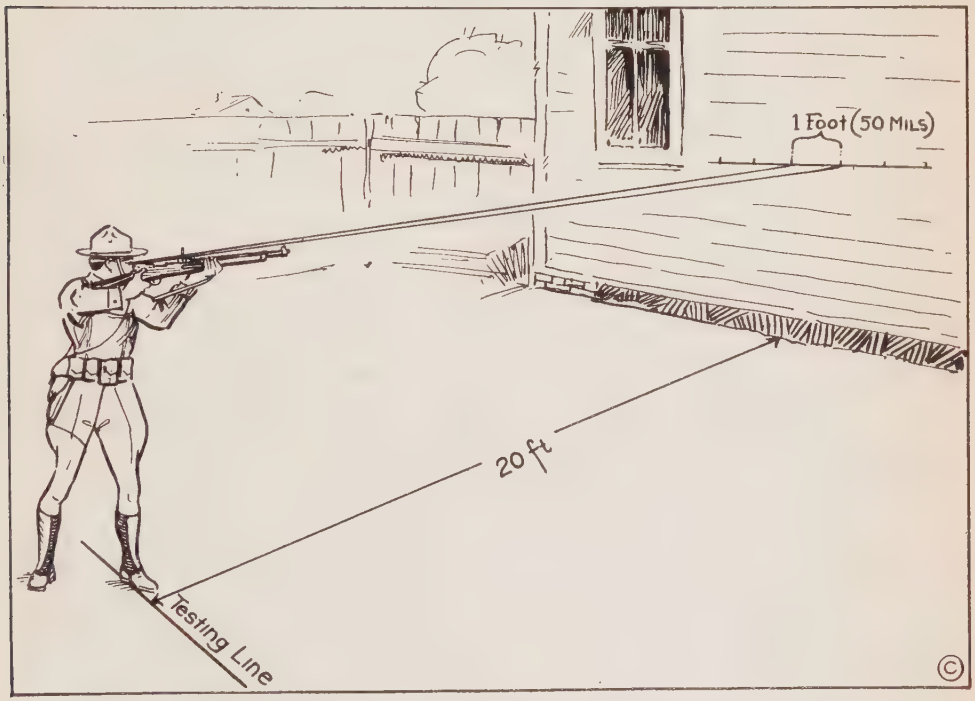


PLATE 29. Calibrating Sight.

Exercise 8. Calibration of Sights and Fingers. *Purpose:* To secure accuracy and uniformity in lateral measurements with the use of the fingers or the sights of the rifle.

Equipment: Wall upon which vertical lines, one foot apart are marked, or painted.

"Station line" indicated at a distance of 20 feet from the building and parallel to the side.

Rifle for each man participating.

Procedure: The class is formed in single rank on "Station line," and the necessity for uniformity in the use of fingers or the sights of a rifle for measuring lateral distances is explained.

The instructor explains to the students that the mil is an angle which, at a distance of 1000 units, is subtended by a chord of one unit, and therefore at a distance of 20 feet the sight leaf (or finger) which equals 50 mils, will be sub-

tended by a chord of 1 foot. Accordingly the sight leaf covers a frontage of 1/20 of the range, or 5 yards for every 100 yards of range.

The method of securing uniformity in the use of the fingers or rifle sight is then illustrated by the instructor with the aid of the vertical lines on the wall, as follows: The rifle is placed at the shoulder pointing toward these lines, head is moved backward or forward on comb of the stock of the piece until sight leaf exactly covers one space. Position of cheek on comb of stock is then firmly fixed in the mind.

The individuals of the class calibrate their rifle sights by means of the 1 foot spaces. The exercise is repeated until proficiency is attained.

Rifles are laid aside, and each individual calibrates his fingers with the intercepts as follows: Right forefinger is brought to a vertical position in front of the eye and moved backward and forward until it exactly covers one intercept. It is then dropped to the side without changing the position of the elbow or the wrist, and its point of contact with the body is noted and fixed in the mind. The student then places the right hand on this point of contact (on his thigh), and endeavors to bring the fore-finger before the eye so as exactly to cover one intercept (1 foot). This is repeated for the whole hand and a particular width of hand, fingers or knuckles, etc., covering 1, 2 or 3 intercepts (50, 100 or 150 mils) is carefully determined.

Practice in lateral measurements is then given by means of convenient objects within view, using both sights and fingers.

Exercise 9. Target Designation by Pointing. *Purpose:* To determine the proficiency of the class in target designation.

Equipment: Marker flags.

Procedure: The class is conducted to the site selected and organized into squads. The student to be tested acts as leader of a squad. The squad (excepi the leader) is deployed, facing to the rear. The leader in position behind the squad, faces the front. The instructor signals to his assistants, and a target is indicated by displaying a flag. The squad leader is allowed a reasonable time (not to exceed two minutes) to fix the position of the target in his mind. When he states that he has done so the flag is withdrawn.

The squad is now faced to the front, and the leader designates the target to them, by pointing with the rifle as shown in Plate 6, and at the same time giving the range and nature of target to each man. Each member of the squad in turn sets his sights at the designated range, and by pointing with his rifle sights, indicates to the instructor the point at which he understands the target to be located. The instructor checks each rifle and grades the squad leader according to the accuracy of his designation. He may also grade the members of the squad on target recognition. The grade (for the leader) is determined as follows: If there are 7 rifles and 5 are properly aimed, the grade would be; $500/7=71.4$. It is to be noted that the leader is not graded on his theoretical designation of the target, but on the correctness of aim of his men.

Exercise 10. Target Designation by Oral Description. *Purpose:* To give practice in target designation by oral description.

Equipment: Rifle, paper, and pencil for each member of class.

Procedure: Have a man stationed at each of 10 points selected for targets. Each, in turn, waves a white flag when his signal is given by instructor.

Students are cautioned that neither men nor flags may be used as reference points.

Two minutes are given to write proper designation for each target.

Instructor gives an approved designation for each target and explains same, after class has completed the 10 designations.

Exercise 11. Terrain Features. *Purpose:* To familiarize the students with the common features of the terrain and their names.

Equipment: None.

Procedure: The instructor conducts his students to high ground from which a diversified terrain is visible. He names various features and causes the students to point out examples of the features named. He points out various features and causes the students to name them.

Similar instruction may be given in the classroom, using the landscape targets and other landscape views.

Exercise 12. Demonstration. Theory of Fire. *Purpose:* To show the form of the trajectory.

Equipment: None for class.

Three automatic riflemen with two magazines each, each magazine loaded with 50 per cent tracer and 50 per cent ball ammunition.

Procedure: Class is assembled and observes:

1st: 1 auto rifleman fire a few shots at 300 yards.
2d: 1 auto rifleman fire a few shots at 600 yards.
3d: 1 auto rifleman fire a few shots at 900 yards.
4th: All three auto riflemen fire a few shots simultaneously at each range.

This enables the students to observe and compare trajectories at different range. Attention is called to the flatness of the trajectory at the shorter ranges.

Exercise 13. Identification of Targets. *Purpose:* To give practice in identifying field targets.

Equipment: Rifles for class. Seven silhouette targets (3 kneeling), (4 prone).

Procedure: Class is assembled at point where it is possible to see the seven targets. (These targets are so placed that they blend into background and are only partially visible.) The class is divided into squads. Each squad should discover the seven targets and point them out, by means of rifles, in seven minutes.

The instructor and platoon leader check up on each squad to see that all targets have been located. This can be repeated with many variations.

Exercise 14. Demonstration. Fire Distribution. *Purpose:* To show the manner in which a squad distributes its fire over a linear target.

Equipment: One rifle squad, completely equipped.

120 rounds tracer ammunition.

7 silhouette targets.

Procedure: Place the seven silhouette targets in line at 5 to 10 yard intervals. Deploy the squad at a range of 300 or 500 yards from the target. Have one rifleman distribute his fire over the targets, using tracer ammunition, and firing 10 to 12 shots. He will commence with the target corresponding to his position in the squad, traverse to the right, thence beginning at the left target, back to the right again. Then have the entire squad fire for one minute, distributing their fire over the targets.

The instructor, during this demonstration, should call attention to the mechanism of distribution. He should point out the resulting even distribution of both the good and poor shots. The instructor may cause one man to set his sight 300 yards too high so that his shots pass over the targets, pointing out to the students that this simply reduces the volume of effective fire of the squad, but does not leave any part of the target uncovered. This may be done with .22 caliber rifles on any 50 foot range where the distribution can be shown by actual hits on a target of white paper upon which small black silhouettes have been pasted.

Exercise 15. Fire Distribution. *Purpose:* To teach distribution.

Equipment: Rifle for each member of class, 2 red flags.

Procedure: A linear target is indicated to the platoon leader by the display of flags marking its flanks, which are removed as soon as he understands the location and extent of the line. The platoon, which has been faced to the rear,

is now faced about, moved to the front, halted, the target described, and all men required to aim their rifles for firing the first shot. One minute after the firing data is given, the rifles are inspected for sight setting and distribution.

Exercise 16. Fire Distribution. *Purpose:* To show method of distribution.
Equipment: Rifles for class.
Procedure: A squad or platoon is given a target and advances by rushes against it. After the line has gained some 150 yards, all men are required to align their rifle sights for inspection and the distribution is checked as indicated in Exercise 14.

The principles governing proper distribution can also be shown to advantage on the landscape target.

Exercise 17. Fire Distribution. *Purpose:* To give practice in distribution of fire.
Equipment: A line of 8 to 15 silhouette targets concealed in high grass or weeds. Twenty rounds of ammunition for each rifleman, 80 rounds per auto rifleman.
Procedure: The squad or platoon is placed in firing position, and the target is designated to them. The squad or platoon fires upon it, using distributed fire.

Targets are examined. If any have escaped because of their concealment, while the visible targets show numerous hits, the distribution was poor. Men have allowed most of their fire to be drawn to the visible targets and have neglected the intervening places of concealment which are equally important.

Exercise 18. Sight Setting. *Purpose:* To illustrate a quick and correct method of setting sight.
Equipment: Rifle and belt for each man participating.
Procedure: The instructor explains to the class the necessity for correct and rapid sight setting, and that this must ordinarily be done in the prone position. He takes the prone position, demonstrates and explains the setting of the sight.

The class is formed in two ranks, facing each other at about 3 paces distance, with about a half pace between men of the same rank. The instructor calls ranges and the students set their sights at the ranges indicated. The time allowed is gradually reduced until the students are able to set their sights in 10 seconds.

Test: Having completed this exercise the instructor tests the efficiency of the students as follows:

The class is organized into squads. One squad at a time is deployed at one pace intervals, phone, 15 yards in front of the instructor, facing him. The instructor then announces or signals a range, and each man sets his sight. At the end of 10 seconds the instructor calls "Time." The squad rises and comes to ***port arms.*** The sights are checked by the instructor or his assistant. For each sight correctly set a score of ten is awarded. Failure to set the sight properly or to complete the setting within the time allowed means no score for that range. The procedure is repeated, ten ranges being given, five by command and five by signal. Total possible score for an individual, 100.

Exercise 19. Transmission of Orders. *Purpose:* To accustom men to receive and transmit firing data.
Equipment: Rifle for each member of class.
Procedure: The class is divided into squads and platoons. One squad or platoon is deployed (prone). The target designation is given to the squad or platoon leader who in turn transmits it, as he sees fit, to his unit. At the end of one minute sight settings are checked.

Another squad or platoon is deployed in the intervals in the original line. At the end of one minute the original unit is withdrawn. Second unit is required to align rifle sights showing where they would fire first shot. Sight settings and alignment of sights on target are checked.

Exercise 20. Use of Cover. *Purpose:* To train men in taking cover.
Equipment: Rifle for each member of class.
Procedure: At a suitable place on the terrain, the class, except a selected squad, is halted and faced to the rear. The selected squad is marched to the front, 200 to 500 yards, and at a whistle signal is halted, faces towards the class and takes cover as skirmishers.

The class is faced towards the front and told to pick out any members of the squad. If cover has been well selected some or all of the squad will be invisible.

At a second whistle signal, members of the squad crawl forward a short distance. This will emphasize the fact that a man lying still is much harder to discover than one moving.

At a third whistle signal have one or two men sit up; at the fourth, have two men stand up. Call attention to the contrast.

With a very little preliminary trainng this demonstration squad can take cover on a seemingly bare field and be hidden from view.

Exercise 21. Demonstration. Fire Control. *Purpose:* To teach fire control of a flank squad in position.
Equipment: Rifle and 30 rounds of service ammunition for each rifleman, automatic rifles and six loaded magazines for each auto rifleman, 5 tracers for squad leader. Ten silhouette targets.
Procedure: The squad is deployed in firing position, 400 to 600 yards from a target consisting of a line of silhouettes about 30 yards in length and partially concealed.

The target is pointed out to the squad leader who directs the fire of his squad upon it.

After the squad has fired for about one minute on the first target, a new target consisting of one or two silhouettes appears in a different direction and the squad leader is told that he is receiving fire from that direction.

The squad leader quickly directs the fire of a portion of his squad on the new target leaving the remainder of the squad to continue firing on the original target. It is usually best to direct the fire of the automatic rifle on the new target because considerable fire effect can be secured with the least delay.

Three minutes after fire is first opened the corporal is told to cease firing and the exercise ends. Targets are examined or hits signalled to firing point and recorded.

This is an excellent exercise to teach all the other principles of musketry as well as fire control.

Exercise 22. Fire Control. *Purpose:* Practice in fire control of a platoon in position.
Equipment: Same as in preceding exercise except that original target is from 75 to 150 yards in length and one or more surprise targets of a squad length may be introduced.
Procedure: Same as in preceding exercise.

Exercise 23. Demonstration. Fire Control. *Purpose:* To teach fire control and fire discipline in a squad advancing.
Equipment: 7 rifles and an automatic rifle.
60 rounds of service ammunition for each rifleman.
6 loaded magazines for each auto rifleman.
10 rounds of tracers for each scout.
Procedure: The target consists of a line of field targets from 15 to 30 yards in length and only partially visible at ranges beyond three or four hundred yards.

The squad is deployed at a distance of about 600 yards from the target. The scouts advance toward the target, but the rest of the squad remains in place.

When the scouts have reached a satisfactory firing position about 500 yards

from the target they are told that they are receiving heavy fire from the direction of the target.

The scouts take cover, locate the target, and open fire with tracer ammunition as the remainder of the squad advances to their position by infiltration.

As soon as all the men are in position and firing the squad leader advances the squad by means of four-man rushes.

When the squad reaches a point about 300 yards from the target the automatic rifleman is told that he has been hit and is directed to drop out. He is replaced by the substitute auto rifleman.

The squad leader is told that more fire is needed to cover the rushes. He changes the method of advance from four-man rushes to two-man.

At a distance of about 200 yards from the target the squad leader is told to fall out as a casualty. He is replaced by the second in command.

When the squad reaches a position about 150 yards from the target the squad leader is directed to cease firing, and the exercise ends. The target is examined and the hits are recorded.

Exercise 24. Fire Control. *Purpose:* To teach fire control and fire discipline in a platoon advancing.

Equipment: 21 rifles and 3 automatic rifles.
60 rounds of ammunition for each rifleman.
6 loaded magazines for each automatic rifleman.
10 rounds of tracers for each scout.

Procedure: The method of conducting this exercise generally follows that of the preceding exercise, with the following modifications:

The target is from 50 to 150 yards long.

The rushes are first made by squad, later by four men and finally by two men.

The advance by rushes is continued to within about 50 yards of the target.

Casualties are indicated by the instructor as he sees fit to bring out the lessons of fire discipline to best advantage.

Exercise 25. Demonstration. Rifle Squad in Attack. *Purpose:* To illustrate all details of the mechanism of fire and movement in the attack.

Equipment: One demonstration rifle squad, fully equipped.

Sixty rounds of tracer ammunition per rifle, 240 rounds of tracer ammunition for automatic rifle.

Note.—If a target range is available firing will be conducted with tracer ammunition. Otherwise fire will be simulated. It is assumed that an automatic rifle is attached to the rifle squad.

Sixteen silhouette targets set up irregularly (at varying intervals and distances).

Procedure: The class is formed on high ground, overlooking the terrain on which the demonstration takes place.

A scout precedes the squad at about 250 yards. He reaches a crest and receives fire from the targets (imaginary). After locating the target, he sets his sight, and opens fire or simulated fire (see note) on the flanks of the position.

The squad leader, from a covered position in rear, orders, "Jones (automatic rifleman), move up on line with the scout." The entire squad moves by infiltration to the line, making proper use of cover, etc. The leader follows Smith. The second-in-command moves forward last.

The automatic rifleman reaches the line of scouts and takes cover. The scouts call the range "600," and may add "watch my tracers." The automatic rifleman sets his sights, and opens fire (with tracer bullets, or simulated).

The squad leader arrives, ascertains the range, points out positions to the other men as they arrive, and calls and signals to each, "Range 600," and may add "watch the tracers."

The next to the last man to come on the firing line is a recruit. He fires wild. The squad leader crawls over to this man, steadies him and puts his fire on the target.

All of the squad being on line, the scouts distribute their fire to cover the entire line of targets.

The squad leader is wounded. The second in command assumes the leadership, and moves to his proper position.

The new leader receives from his platoon leader and repeats back a signal (assumed), ***Squad rush.*** He gives the necessary command ***(CEASE FIRING. Prepare to rush. UP),*** and leads the squad forward about 30 yards, to a new firing position. The advance from here can be varied to four- or two-man rushes if the problem is continued.

The instructor, with the class, calls attention to and comments upon each feature of the demonstration.

Comments: A number of demonstrations similar to the foregoing may be given, covering all details of the mechanism of fire and movement. Such demonstrations should follow the chapters on the conduct of fire and should precede similar exercises in which the students (or the units in training) themselves participate.

Exercise 26. Conduct of Fire. *Purpose:* To illustrate the mechanism of fire and movement in the attack.

Equipment: Full equipment for each participating. No ammunition.

Procedure: A squad is deployed as skirmishers at about 600 yards from a designated linear target on the landscape. The squad leader gives his orders, and the squad opens simulated fire. Under cover of this fire the advance proceeds by rushes of 25 to 40 yards, two or four men at a time. The rushes are covered by accelerated fire. The squad leader gives all necessary orders. The men should be accustomed to the teamwork of fire and movement.

Similar exercises should be conducted for the platoon.

For the purpose of the following exercises we shall consider that rifles have been harmonized and that the range is ready for firing.

Exercise 27. Landscape Target Firing. *Purpose:* To teach fire concentration and target designation.

Equipment: 5 rounds service ammunition for each rifleman.
20 rounds of service ammunition for auto riflemen.
Landscape target.

Procedure: The target is shown only to the squad leader, who then gives the fire order. The squad fires and the resulting shot group shows the need of proper target designation on the part of the squad leader and the ability on the part of the men to recognize the target. Attention is called to the effect of concentrated fire and its value against a small target like a machine gun.

Exercise 28. Landscape Target Firing. *Purpose:* To teach fire distribution and target designation.

Equipment: 5 rounds service ammunition for each rifleman.
20 rounds service ammunition for auto riflemen.
Landscape target.

Procedure: The target is shown only to the squad leader, who then gives the fire order. The squad fires, and the resulting distribution of hits shows the need of proper target designation on the part of the squad leader and the ability on the part of the men to recognize the target. In this problem each man will cover the entire target, firing his first shot at that part of the target corresponding to his position in the squad.

Exercise 29. Landscape Target Firing. *Purpose:* To show the effect of errors in sight setting and range estimation.

Equipment: Same as in preceding problems.

Procedure: Target is shown to squad leader, who then gives the necessary fire orders. The automatic rifleman uses "harmonized" sight setting, three riflemen lower their sights 200 yards and the three others raise theirs 200 yards. The necessity for correct range estimation and sight setting will be apparent from the resulting shot group.

Exercise 30. Landscape Target Firing. *Purpose:* To teach fire control.

Equipment: Same as in preceding problems.

Procedure: Same as in preceding problems, in addition, as soon as all men are firing, a second target is pointed out and the squad leader is required to shift part of his fire to it, keeping the first target covered. This calls for prompt decision and action. The character of the new target will govern the amount of fire applied to it.

Exercise 31. Landscape Target Firing. *Purpose:* To teach target designation.

Equipment: Landscape targets, pins.

Procedure: The instructor designates a target after which each member of the squad indicates his identification of it by pushing a pin into the target at that point.

Different members were called upon to designate targets, the others locating them as before.

Designations are discussed and corrections made.

This exercise may be conducted in the classroom by merely marking off sights across the top of a colored panel in addition to the ranges marked along the side.

TACTICAL EMPLOYMENT OF SMALL CAVALRY UNITS

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TACTICAL EMPLOYMENT OF SMALL CAVALRY UNITS.

Introduction.

No officer is fully qualified to exercise command until he has become familiar by study and training with the tactics of the small units. A knowledge of these tactics must accordingly form the foundation for the training of officers for the duties of high command. The noncommissioned officer who is fully qualified to lead a squad may be intrusted with the command of a platoon. The qualified platoon leader must often undertake the duties of a troop commander. In each grade a properly instructed leader seeks to acquire the proficiency which justifies his promotion to the next higher grade.

Battles consist of the local combats of small units.. These units win the local successes which enable the army to win the battle. All other arms exist solely to aid the infantry platoon to defeat its enemy. Accordingly all officers of all arms and of whatever ranks should be familiar with the tactics of small dismounted cavalry units and infantry units. Those who direct technical troops, perform staff duty or exercise higher command must indeed know more, but no officer can afford to know less.

War is constantly becoming more complex, and better methods and a higher degree of training are continually demanded. The responsibilities of commanders of the higher grades are constantly increasing, and the problems of supply, transportation, intelligence, and the use of auxiliary weapons and machines, involve infinite detail.

But the tactics, especially the combat tactics of the smaller infantry units, if they are to be practicable and successful, must remain simple. Especially is this true since the magnitude of present day wars and the intolerable burden of maintaining large standing armies, means that all important wars of the future, so far as America is concerned, will, like the World War, be fought with hastily trained citizen armies.

The success in battle of the great citizen armies which will fight any major war of the future will depend upon the manner in which hundreds of thousands of junior officers and noncommissioned officers play their parts in the game.

But the game begins before the battlefield is reached. Untrained troops pay dearly for victory when they are fortunate enough to be victorious. Upon the junior officers and noncommissioned officers of infantry devolves the task of training the masses of our infantry before combat begins, and then of leading them intelligently in that combat. These leaders should, therefore, be the élite of the nation's young manhood and they should be thoroughly trained in peace time to perform the duties which must inevitably fall to them in the event of war.

While the development of initiative and responsibility is of prime importance and not to be discouraged, yet there is ample room for the exercise of initiative within the limits of "good practice." An artisan should serve his apprenticeship before he attempts to assume real responsibility. The initiative of a good carpenter who knows the restrictions of his trade is productive of the best results, whereas the initiative of a green hand is very apt to be bizarre, even actually dangerous. Individuals who must work in such close cooperation as the members of the military profession should all be trained along the same lines. They will then have more confidence in each other, and any one will know about what another will do in any given situation. It will be easier for subordinates and troops to adapt themselves to the inevitable change of command.

An officer taking up another's work will carry on along the same lines, instead of overturning everything that his predecessor has done. Accordingly uniform training throughout the components of the army of the United States is of the utmost importance, and to promote such uniformity is one of the objects of this course.

The powers of mind and the traits of character which distinguish the leader are the same in the pursuits of peace as in the conduct of war. It is only in the nature of the technical training required that we find a difference. Common sense, good judgment, the ability to marshal and weigh the evidence and correctly estimate the situation, the power to make a decision, to formulate a clean-cut plan of action and to express it in clear, direct and forceful language, the courage to cling to one's plans and carry them out vigorously and promptly in spite of all difficulties, the traits of mind and character which enable a man to command the confidence, respect and loyalty of his subordinates, and to call forth their best efforts—all of these things are as characteristic of the successful business man or captain of industry as of the successful leader of troops in battle. It is confidently asserted that there is no other known form of training better fitted to develop these essential characteristics of leadership than a proper course of military instruction. The primary mission of this course is to develop these characteristics of leadership.

It is to be hoped that those who are interested in the education of our young men, even from a purely civil point of view, will not overlook this important truth: that a course of military training which develops *leaders of men,* is far from being a waste of time, even in the happy but unlikely event that we shall see no more wars.

The method of teaching tactics which is now universally recognized as the most effective and practical is what is known as the applicatory system. This method is followed in this text. It consists of an exposition of principles or truths and their practical application to concrete cases in the various situations which may confront the leader of troops. In this manner the theoretical principles are translated into the definite actions of the leader of troops, and impressed upon the mind of the student as practical experiences.

In this course no sharp distinction is made between the so-called "open" or "mobile" warfare, and "stabilized" warfare. Each is regarded as a situation or phase of combat which may recur from time to time. The same principles of warfare are applicable to both situations.

CHAPTER I.

TACTICAL AND COMBAT PRINCIPLES.

There are a few fundamental truths which have always been applicable in war and battle from time immemorial and will continue to be so in future wars. These truths are known as tactical principles or principles of war.

Though these principles themselves do not change, their application is different for units of different sizes and varies from time to time for units of the same size. *Combat principles* refer to the methods used in applying tactical principles to a unit of any given size. Thus by combat principles of the rifle squad we mean the methods by which a squad applies the fundamental, unchanging tactical principles or principles of war to the different conditions of combat.

Recently there have been important developments in weapons, means of transportation and other mechanical adjuncts of warfare. Precisely what changes in combat principles and in unit organization these late developments will necessitate is and for some time to come must remain problematical.

That there will be changes both in the combat principles and in the organization of all units from the squad to the army seems a logical assumption. It is, therefore, necessary for all leaders and potential leaders to visualize continuously what effect the introduction of new mechanical means and the development of old will have on the present organizations of small units, on distances and intervals within these units and between units, on dispositions of troops in various situations, and in general on combat principles as now taught.

Some of the mechanical post-war developments which an enemy may logically be expected to have and in the event of a future war to employ against us, and which we certainly shall have to a greater or less extent are: A magazine shoulder rifle of somewhat smaller caliber than our Springfield model of 1903, which will reload itself immediately and fire each time the trigger is pulled, with the shock of recoil almost or entirely eliminated; a light machine rifle mounted on a tripod and capable of delivering fixed, automatic fire, (such as is now furnished Cavalry), to be organically a part of or to accompany closely the small infantry units; light, fast moving tanks, which can change direction quickly and frequently in order to avoid the effect of hostile anti-tank fire; and armed and armored cars with rubber tired wheels capable of rapid movement across country and of very high speed on roads.

With a view to stimulating thought concerning the changes in tactical methods which must inevitably occur as a result of these mechanical developments questions relating to them are inserted in the text.

Although changes in present combat principles will occur, the student must not therefore conclude that a study of present methods is of little value. The formations which will be adopted, the distances and intervals which will be regarded as normal, and the generally accepted methods of procedure in any given situation, will be simply common-sense modifications of those used today. The leader who learns thoroughly the technique of leading small infantry units in combat as taught today will find that he has a far better understanding of the new technique that will be developed in future and that he will have no difficulty in adapting himself to the changes.

Principles of the Art of War not Rigid. Warfare is far from being a precise science. There is prabably no other line of human endeavor which is less subject to fixed rules and rigid methods of procedure. And this is especially true of combat—the most important operation of war.

The rules and principles of war or tactics, such as they are, are common sense based upon experience and precedent. It has been found that a certain method of procedure has repeatedly given good results in certain situations. From this we deduce a principle for our own guidance in similar situations. But no two situations are ever exactly alike. An apparently insignificant difference in two situations may call for radically different methods of procedure.

We shall first consider certain truths relating to the art of war and then under combat principles consider the application of these truths by the various small infantry units in different combat situations.

Tactical Principles.

The Offensive. Decisive results cannot be achieved by passive measures. The defensive may evade defeat, for a time, but it can never gain victory. In war it is best to retain the initiative and to force the enemy to adapt his plans to ours. This means that we should prefer the offensive to the defensive. "If in doubt, attack," is a good rule.

Combined Employment of all Forces. Every element or member of the command should be assigned a definite task before entering combat. The entire force should be utilized. If any part is withheld in the beginning it should be with a view to a definite employment at a later stage.

Concerted Effort. Military operations, to a greater degree than any other human activity, require concerted and coordinated action by a vast number of individuals. The ideal army is one in which the entire force responds to the will of a single man as effectively and smoothly as the muscles of the human body respond to the impulses of the brain. All the elements of the command should mutually support each other, and concentrate their efforts to a common end. All the auxiliary arms and all supporting forces should cooperate to give the utmost assistance to the infantry during the crisis of the action.

In every situation of a large command, and often in those of a small command acting alone, there will be several missions to perform. One of these will always be of paramount importance. The commander should cleave to the main idea and not fritter away his force by trying to accomplish too many things at once. As many troops as possible should be assigned to the principal mission, as few as possible to necessary subordinate missions, and relatively unimportant missions postponed or abandoned. A small unit especially (a squad, for example) can have but one mission. It cannot strike effectively in more than one place at a time. Combats which offer little prospect of success, or which have no bearing on the general plan, are to be avoided. Success in one great battle will carry with it all minor achievements and compensate for all minor defeats.

Concentration of Force at the Critical Point. Regardless of the total strength of the opposing forces victory is won by the concentration of superior force at the critical or decisive point or points. Force which is not brought to bear can have no effect on the outcome. This principle is applicable to forces of every size. A platoon overcomes hostile resistance by intelligently bringing the combined power of its two sections to bear on the resistance. Concentration of force is the aim of all tactics, whether on a small or large scale.

The reverse of concentration is dispersion. A mere separation of the parts of a command is not necessarily dispersion, for troops must be distributed for combat. They should not, however, be so massed as to incur undue risk of losses from hostile fire or counter attack, or to prevent freedom of maneuver. A force is unduly dispersed when its elements are so separated by distance, obstacles or lack of intercommunication, that they cannot effectively co-operate in the accomplishment of ther common mission, or support each other in case of emergency. The smaller the force the greater the danger involved in dispersion. A division separated from its corps can maintain itself for a con-

siderable time, even against a greatly superior force. A platoon separated from its company is promptly overwhelmed.

Integrity of Tactical Units. The principle of the integrity of tactical units is an important element in the concentration of force. A tactical organization should be held together and employed as a unit whenever possible. Do not split up a squad, a platoon, a company or even a battalion unless imperatively necessary. A platoon is something more than six squads. A regiment acting as a unit is a more effective force than three separate battalions. A mixed unit cannot possibly have the esprit, morale, or discipline of a permanent unit under its proper commander. It is not so easily controlled nor so effective in battle. Three platoons, attacking in different localities, cannot achieve the results which would be obtained by the same forces concentrating their efforts *as a company.*

Ecnomy of Force. This principle is closely related to the three preceding. In every tactical situation there is always one chief mission. The greatest possible force should be assigned to this chief task and the least possible to subordinate tasks. As a rule the only detachments which are justifiable are those which keep relatively larger forces of the enemy out of the main battle; or those which cover the flanks or the line of retreat, or otherwise provide necessary security for the force. When a battle opens all detachments other than the above should be recalled or should themselves rejoin the main body, unless they have express orders not to do so.

Fire and Movement. We have seen that combat consists essentially in the advance of the attacker's infantry against that of the defender. The defender will oppose this movement by fire. Accordingly, in order to advance, the attacker must beat down the fire of the defense by a superior fire in which all available fire weapons take part. The attack then, has two elements, *fire and movement.* The intelligent combination of these two elements of battle, is the aim of all training.

The defense employs fire to halt the attacker. Failing in this it resorts to the more active measure of counter attack, in which fire and movement are combined in the same manner as in attack.

Fire Superiority. The best cover for the attacker's advance, which makes movement possible, is his own fire. This includes not only the fire of the infantry, but also that of all auxiliary and supporting weapons. The effect of a properly directed fire is to cause the enemy to stay down under cover and to render his fire far less effective. When the effect of the enemy's fire has been reduced to such an extent that the attacker is able to move forward without suffering ruinous losses, the attack is said to possess *fire superiority* over the defense. The extent of this superiority of fire will determine the speed with which the attacker is able to move. If the fire of the defense is very wild and ineffective, the attack will be able to move complete units forward simultaneously over relatively long distances, and it will sonn close with the defender in the shock of personal contact. If the fire of the defense be somewhat more effective the attack will be able to move only small units or fractions of a unit over relatively small distances, or its troops may have to work their way forward as individuals. When the fire of the defense is so effective that no forward movement is possible without heavier losses than the attacking troops can endure, fire superiority lies with the defense, and if this condition continues the attack is a failure.

Fire superiority is thus a moral phenomenon. The physical conditions upon which it depends are great *volume,* high *accuracy* and proper *distribution* of fire. The term is *relative,* inasmuch as a very weak and poorly directed fire *may be* sufficient to establish fire superiority over very inferior troops. Fire superiority

is a vital factor in battle, and having once been *established* it must also be *maintained,* otherwise the attack comes to a standstill.

Simplicity of Plan. Simplicity should be the keynote of tactical procedure in plans, orders and execution. Only the simplest plan has any chance of success in the confusion of battle. Never attempt anything complicated. A simple plan, whose success does not hinge upon a number of contingencies, is always possible.

Surprise. The element of surprise is usually essential to the success of an attack. Surprise is achieved by secrecy in preparation and vigor and rapidity in execution. In addition to taking the enemy unawares it is necessary to strike him with such vigor as to throw him off his balance. Small units take advantage of darkness, fog, woods or other natural cover to move forward unobserved. When the preparations are complete the attack is launched as suddenly and as vigorously as possible.

Employment of Supports and Reserves. Supports and reserves are bodies of troops, preferably complete units, temporarily withheld from participation in the combat, for the purpose of meeting later developments. Supports pertain to small units, reserves to larger units. All units larger than a platoon have their own supports or reserves. At the opening of a combat, especially when the situation is uncertain, ample reserves should be retained under the immediate control of the commander. Troops which are not employed exercise no influence on the outcome. Therefore the reserves must be boldly and unhesitatingly employed when the occasion arises. The commander must have the knowledge and skill to recognize the occasion, and the resolution to employ his reserves aggressively.

Security. Security in a military sense means measures taken to prevent surprise. A commander may be excused for being defeated, but never for being surprised.

Troops deployed for battle can defend themselves only from an attack upon their front. They can move only to the front, and their flanks are most vulnerable to an unexpected attack. For extended movement it is necessary to place troops in column. A column formation caught by surprise fire may suffer ruinous losses in a very short space of time. Moreover, even a deployed line may be seriously damaged by fire from the front, if caught in the open, while in motion, and at short range. The security of the attacking troops is accordingly one of the most important and most difficult problems of the commander.

The measures for security in battle are many. In a broad sense all the measures of attack or defense contribute either directly or indirectly to security. Some of the more important of the direct measures are as follows:

1. Correct information concerning the enemy.
2. Continuous reconnaissance to gather information and give warning of impending danger.
3. Covering detachments to front, flanks and rear, as necessary to check a hostile movement from any direction.
4. Continuous observation from the ground and from the air.
5. Correct formations, which enable a unit to defend itself against a surprise attack.
6. Contact with and mutual support of adjacent units, especially on the flank.
7. Fire of supporting weapons, promptly concentrated on dangerous areas.
8. An intelligent use of the concealment and cover afforded by the terrain.
9. Supports and reserves to protect troops in combat by attacking any hostile troops which threaten them.
10. Field fortifications.
11. Aggresive measures which retain the initiative. These constitute the best security against surprise.

Utilization of the Terrain. The terrain exercises a controlling influence on all military operations. Properly utilized it is frequently the decisive factor. The elements of the terrain are the concealment, cover, facilities for movement and opportunities for observation and fire which it affords, and the obstacles it interposes to fire and movement. Every individual and every unit of any size, and in every situation, whether moving or stationary, should seek the natural advantages of the terrain, and avoid its disadvantages.

Correct Formations. The formations of a unit, that is the manner in which its elements are concentrated or deployed (distributed) over the terrain, should be appropriate to the task it has to perform, and the weapons with which it is armed and to which it is opposed. In olden times troops fought hand to hand in close serried ranks. In a modern battle the troops are widely deployed, both laterally and in depth (from front to rear). This is necessary to permit of maneuver and the effective use of modern, long range weapons, and on the other hand to evade the effects of hostile fire. Movements not under fire are made in large columns, which permit better control and use of available roads. Movements under fire or exposed to fire are made in small columns or deployed lines.

Intelligence. (Information). A commander is at a great disadvantage if he does not know what he is fighting. Military operations can be efficiently conducted only in the light of the best obtainable intelligence or information concerning the terrain, and the enemy—his strength, weapons, disposition and probable intentions. Intelligence is collected from every possible source, and the process is continuous.

The chief sources of combat intelligence, so necessary for the guidance of the smaller infantry units, are continuous observation and reconnaissance by leaders, observers, scouts and patrols. Observation and reconnaissance should be continuous during maneuver or combat. They should never be remitted.

Mobility. It has been said that more battles have been won by strength of leg than by force of arms. We have seen that a rapid concentration of superior force at the critical point is the secret of victory. To effect such concentrations, troops must be mobile, that is they must have the power of prompt, rapid and sustained movement. Mobility, so far as the troops themselves are concerned, is chiefly a matter of training, and it is the characteristic which especially distinguishes well-trained troops.

Exploitation. The mere defeat of the opposing forces is not the sole aim of the attacker. He is not like the boxer who is content to win a technical decision "on points," but seeks to administer a "knock-out." The purpose of war is to impose our will upon the enemy, and this must be accomplished by completely breaking down his resistance by capturing or destroying his armed forces. Accordingly, the attacker, having driven the enemy from his position, must *exploit his success* by inflicting all possible damage upon his defeated opponent. Local successes are promptly followed up by utilizing the supports and reserves to press the defeated enemy.

Characteristics of Commanders.

Caution and boldness are necessary characteristics of the successful commander. They are by no means inconsistent, and each is essential to the other. Success is won by intelligent boldness. On the other hand, timidity and foolhardiness are most undesirable qualities, either of which may bring disaster. A knowledge of the game substitutes boldness and caution for rashness and timidity.

The hazards apparently taken by successful commanders are really not as great as they appear. They are simply the positive measures of strong characters, based on a thorough knowledge of the art of war. At the close of one of the combats in the Meuse-Argonne, an American brigade was formed in column of route and boldly marched several miles into territory occupied (though not *held*) by the enemy. This was apparently a violation of those principles relating to

dispersion, security of the flanks, and moving in column through a zone of artillery and machine gun fire. But the commander correctly judged that these principles were not applicable to the situation. He was guided by the principles that when an enemy is disorganized and in retreat it is safe to adopt measures that would be suicidal in the face of a watchful foe whose fighting power is unimpaired, and that only by a vigorous pursuit can the full fruits of victory be reaped.

Latitude Allowed Commanders of Different Grades. The amount of latitude allowed in the exercise of judgment and initiative by a commander varies directly with his rank. The battle formations of a unit become more complex and less subject to rule as the size of the unit increases. While the initiative of subordinates should not be unduly cramped, yet on the other hand uniformity of tactical doctrines and methods throughout the army is most necessary. The initiative exercised by a subordinate must be within the limits appropriate to his rank. Standard formations and methods are prescribed as far as it is wise and practicable to do so, thus insuring uniformity and eliminating *unnecessary* and *undesirable* exercise of judgment by subordinates. Thus the formations of the squad are quite rigidly prescribed in the drill regulations, while those of the battalion are merely outlined.

THE APPLICATORY SYSTEM OF TACTICAL INSTRUCTION.

Need of Practical Instruction in the Art of War.

It is human nature to be embarrassed and confused when one is called upon to assume an unfamiliar role, to do something for which he is not trained. The millionaire captain of industry would be utterly confused if suddenly called upon to shoe a mule. A successful banker would be a spectacle as a catcher at a baseball game. The average private citizen would be completely at a loss if required to prepare the orders for the march of a battalion. He might be a deep student of military history, familiar with all the decisive battles of the world and the reasons for their outcome, yet he would not know how to begin the preparation of a field order.

It is only by continued practical training, by constantly doing things, that we can replace the embarrassment and helplessness of ignorance by confidence and ability. Troop leading is simple and easy to one who knows how as a result of practice—it is impossible to one who does not know how.

The untrained man is deprived of his powers of thought and decision when confronted with an unfamiliar situation. The trained man meets a familiar situation with ease and confidence.

To accomplish its purpose tactical training in time of peace must be *realistic.* The conditions of actual warfare must be simulated as closely as possible. This has been accomplished in what is known as the *applicatory system,* which is now in vogue in the armies of all civilized nations.

The Applicatory System Defined. In brief the applicatory system includes a theoretical study of the principles of the art of war, based upon past experiences, followed by practical exercises in which these principles are applied to assumed cases or "situations." The practical exercises should properly first take the form of illustrative examples and demonstrations, and finally of practical problems, analogous to problems in arithmetic or algebra, in which the full responsibility for the solution is placed upon the shoulders of the student. In one important particular these problems differ from those of arithmetic. There is always more than one, and there may be many, correct solutions. It is manifestly impossible that two different personalities should often decide upon exactly the same line of procedure in any given situation. Any procedure which will accomplish the desired result without waste of time, effort and life, is acceptable—even though it differs markedly from some other line of procedure

which also achieves a similar result. Each solution reflects the nature or character of its author. It will be found, however, that the better the training of the students, the less will be the variation in their solutions and the more nearly all situations will approach the ideal.

Warfare is in a manner comparable to a game, especially a football game. No two plays in the game ever develop in exactly the same way. No individual ever does exactly the same thing twice. The quarterback varies his plays according to the situation as he sees it. Yet the game is played according to rules, there are certain definite principles of attack and defense which are recognized as good practice, and the players are trained in accordance with a system. They play as they have been taught, and observe the rules, but they use their heads in doing so. It is exactly thus with the greater game of war.

CHAPTER II.

THE SOLUTION OF TACTICAL PROBLEMS.

Let us now examine the methods by which tactical problems, whether in time of peace, or in the field in war, are solved, by the applicatory system.

The problem is presented as a "situation" setting forth existing conditions as far as they are known. From this situation the leader must determine what he should do and how best to do it. He must then issue the necessary orders to his command, and see that these orders are carried out.

It may here be observed that such problems are not limited to military situations, but are constantly being presented to leaders in all lines of human endeavor. And they may be and should be solved by the same systematic processes of thought as are prescribed for solving military problems.

In the artificial problem of the class room the "situation" is set forth as a statement of certain facts or probabilities. In an actual case the "situation" will include everything that is known to the leader, and especially the results of his own personal investigations, or reconaissance.

THE ESTIMATE OF THE SITUATION.

When confronted with a situation the leader proceeds to think it over, to consider all its aspects, to look at it from every angle, and to determine what he should do and how to do it. This mental process is called "the estimate of the situation." It will be no innovation in the brain of a thinking man since it is characteristic not only of tactics but of all serious affairs of life.

The "estimate of the situation" then is a logical process of thought culminating in a decision.

The steps of this process, in sequence, are:

1. **My Mission.** What am I to do?

2. **The Opposing Forces.** A comparison of my combat strength with that of the enemy.

3. **The Enemy Situation.** An estimate of what the enemy can do and of what he probably will do to interfere with the accomplishment of my mission.

4. **My Own Situation.** A consideration of the various plans open to me to accomplish my mission with a view to reaching a decision.

5. **My Decision.** The general plan I adopt.

The Mission. The most important consideration, which forms the basis of all subsequent thought and action, is the *mission* of the command—what the unit as a whole is to do. This information will usually be given in the orders of the higher commander. For example: "The first squad will go to that hill (pointing) initially and protect the right flank of the troop." Here the mission of the first squad, as given by the troop commander, is to go to a certain hill initially and portect the right flank of the troop.

Exceptionally, unforseen circumstances will arise which make it necessary for the leader to abandon temporarily his assigned mission. If in doubt the leader can usually determine what action to take in such cases by asking himself: "What would my commander do if he were here now and could see this situation as I see it?"

The Opposing Forces. *a. Own forces.* Under this heading the small unit leader is concerned with the effective strength and location of all elements of his command; with the training, physical condition and morale of his men; and with

the effective strength, the location and the support which may be expected from nearby friendly troops.

b. Enemy forces. Here the leader considers the same factors as far as they may be known to him, with respect to the enemy forces from the latter's point of view.

c. Relative combat strength. The leader now determines from his study of the above factors whether he is stronger or weaker than the enemy and, generally, tries to determine a ratio which will express this relative strength, as for example, 3 to 1.

The Enemy Situation. Under this heading the leader endeavors to determine what plans the enemy might adopt which would interfere with the accomplishment of his mission. He goes over each of these plans carefully, weighs the advantages and disadvantages of each from the enemy's point of view, and decides which plan the enemy will probably adopt. Usually a careful analysis will indicate which plan the enemy will probably use, but if there is any doubt assume that he will follow that plan which will be most embarrassing to you. You are then prepared for the worst that can happen.

The terrain is of special importance in battle and will usually have a large part in determining what the enemy will do in any given case. Hence in analyzing the enemy's plans bear constantly in mind terrain features that are important to him for his own use and also those of which he might wish to deprive you.

My Own Situation. It is well here to fix in mind again what the mission is. Consider then those plans which if successful will accomplish this mission. Analyze each just as was done for the enemy's plans. Finally determine which plan you think is best under the circumstances and adopt this.

My Decision. Express this plan in such a way that you give, as regards the entire unit, *what* you intend to do, *when* you intend to do it, *where* you will do it, *how* you will do it, and, lastly, *why* you are doing it.

Thus you will insure having in your own mind a clear idea of just what you propose to have your command as a whole do in order to accomplish your mission.

The decision of a platoon leader might be: "To attack dismounted *(what)* at once *(when)* up the wooded draw to my front *(where)* in line of squads in column of troopers *(how)* to seize hill 204 and enable my troop to continue its advance *(why)*."

Do not attempt to "straddle" a situation. If you decide to attack, do so with all your force; if to withdraw, do so promptly and thoroughly.

Be bold but do not be foolhardy. If you are in doubt, adopt aggressive measures.

The Plan.

Having arrived at his decision in the manner indicated above, the leader determines in each situation a plan for putting that decision into effect. This plan is a detailed statement of the part to be played by each element of the command.

A platoon leader, having arrived at the decision given above, *i. e.*, "To attack dismounted, at once, up the wooded draw to my front, in line of squads in column of troopers, to seize hill 204 and enable my troop to continue its advance," might have the following as his plan for the operation:

1. "To have the 1st and 2d squads in line of troopers at 8 paces, lead initially in the attack. The scouts of these squads to move forward at once. The 3d squad to advance on platoon leader's signal.

2. "To have the 3d squad follow the leading squads at 100 yards.

3. "To send the scout and alternate scout of the 3d squad to a rise in the ground 200 yards to the right of the platoon as a flank combat patrol.

4. "To lead the platoon to the woods 150 yards ahead when the scouts have reconnoitered and reported all clear."

The plan must be: definite; clear in all of its details to the leader who evolves it; simple and workable so that it will have the best chance of succeeding in the confusion of the battlefield; provide for the employment of every element of the command; and, finally, be one which will accomplish your mission.

Avoid dispersing your force or allowing any part of it to get beyond your control.

Do not attempt to accomplish too many things at once. Have one central idea or main purpose. Devote the bulk of your force to this main purpose and as little as possible to secondary and less important purposes. Thus for a company in attack to send a platoon to protect one of its flanks would be to use too large a part of the force on a secondary effort. The main purpose is to attack; for the secondary effort of protecting the flank, a squad should be sent.

The power of thought. We have dwelt in detail upon this matter of estimating the situation because it is one of the most important duties which the leader of troops is called upon to perform. In every situation which confronts him he must think out his problems along the lines which have been indicated. He must even think ahead and thus forestall the emergencies that are certain to arise, answering the question: "What should I do if such and such things should happen?" Thus in combat, with its constant emergencies, the estimate of the situation becomes an almost continual process of thought. And always it is the thinking man who wins, both the battles of war and those of peace.

There are leaders who appear to reach correct decisions by intuition. But appearances are deceitful. The human mind is not capable of making tactical decisions by intuition. The highly trained leader estimates in a few seconds a situation which the untrained mind could not think out in an hour, or perhaps not at all. The trained mind thinks ahead, and when confronted with a situation instantly gives a decision, but a decision based on prior thought and not arrived at by intuition. The greatest of leaders (Napoleon) frequently stated that he reached his decisions by hard thinking and never by intuition.

FIELD ORDERS.

Having reached a definite decision and determined upon a plan for putting this decision into effect the leader is confronted with the problem of making his decision and plan known to those who are to make them operative. This he does by means of a field order.

For troop and small unit commanders these orders will habitually be oral. For squadron commanders they will only exceptionally be written. Accordingly, and since the form is the same for all field orders, instruction herein is confined to oral field orders.

Form for Field Order.

The form used in our army is known generally as the "standard 5-paragraph order." It is simple and is adaptable to practically all situations and to units of every size from a patrol to an army. The value of having a simple standard form is that it serves to insure the person issuing the order against omitting essentials and it presents the plan in a simple and logical known sequence.

Sequence of Steps in Order. The following sequence should invariably be followed in issuing a field order:

1. *Give information of the enemy and of our own supporting troops.* Small units are primarily concerned with the enemy immediately in front or on the right or left of their position or the position to which they are going. Similarly, they want to know about friendly troops that will or that may assist them in the particular operation being undertaken. They should know the plan of the next higher unit.

2. *Give your general plan.* For example: "This platoon attacks at once up that wooded draw (pointing) in column of flocks to seize that hill (pointing to hill 204) and enable our troops to continue its advance."

This informs all concerned of what the unit as a whole is going to do, thus making cooperation possible in the action to follow.

3. *Give orders to each subordinate element in the unit so that it will know just what part it is to play in the general plan.* This is the most vital part of the order and must accordingly be so clear that those concerned cannot misunderstand what they are to do. When the same instructions relate to two or more elements of the unit they should be given at the end of this paragraph.

4. *Give administrative details immediately connected with the operation.* When necessary give details concerning such items as ammunition, prisoners, and gas masks. Routine matters are not included.

5. *State where messages are to be sent or where you are to be found.* Examples: "The command post will be at the head of that ravine (pointing)" or "I will follow the scouts of the leading platoon."

The following résumé of the foregoing should be committed to memory and repeated until the sequence is firmly fixed in mind:

1. Information of the enemy and own supporting troops.
2. General plan of the commander.
3. His orders to each part of the command.
4. Administrative details.
5. Where the commander will be or where messages are to be sent.

Brevity. An order should be as brief as is compatible with clearness and completeness. Brief orders are less confusing than long, rambling orders. A short, crisp order encourages correct execution.

Frequently the commands and signals prescribed in the drill regulations and in the course of musketry adequately express the will of the leader. These commands and signals should be used whenever it is practicable to do so.

Clearness. In endeavoring to make orders brief, however, be careful not to sacrifice clearness.

The first test of an order is, "Does it cover thoroughly the plan that is to be carried out?" And the second is, "Does it describe this plan so clearly that everyone who has a part in its execution cannot fail to understand exactly what he is to do?"

Language of Orders. Military Terminology.

Every profession has its characteristic language, and this is true of the military profession. If you were a doctor, and you talked to a man who claimed to be a doctor you would soon discover whether or not his claim was true *by the language he used.* If he did not speak in professional terms you would know he was a fraud, and you would not intrust one of your patients to his care. It is exactly thus in the military. A platoon of trained soldiers is intrusted to the command of an officer they have never seen before. As he gives orders they notice at once that he does not use the professional language to which they are accustomed. They lose confidence in him at the outset. And rightly so, for if he knew the military game he would use military language.

Therefore any man who hopes to be a successful leader must learn the language of the profession. It is in giving orders above all, that this language is used. If you talk in a foreign tongue your men will not understand you and will not trust you.

This language can be acquired only by study and practice. Study the orders in the problems issued by the service schools, note their form and the expressions they use. And practice writing and giving oral orders in the problems and exercises which will form part of this course.

Instructions for the Preparation of Orders. 1. A good order is one which presents clearly and briefly the part that each element of a command is to play in an operation. Such an order is invariably the result of careful preparation after a well-conceived plan has been determined upon. The time for this preparation must necessarily be long for the beginner who has many unfamiliar things to consider, but it becomes appreciably less with practice.

Preparation can never be dispensed with, however. The leader who can, even in the stress combat, formulate in his mind what he is going to say before he starts to issue an order, will almost invariably secure better results than he who begins haphazardly.

2. Use positive and decisive language. Avoid such expressions as: "If possible," "if you think best," and "if conditions are favorable." Such expressions indicate irresolution and a desire to transfer part of the commander's own responsibility to his subordinate. Tell the subordinate exactly what he is to do, without any "ifs" or "buts."

3. Use affirmative, not negative, expressions. Thus, "Security detachments will not be relieved until—" is better expressed: "Security detachments will remain in position until—." Also, avoid any other expressions in which the omission or misinterpretation of a single word may change the sense of the order.

4. Avoid expressions depending on an uncertain viewpoint of the observer, as "to the right of X—," or "beyond X—." Compass directions should be given, as "east of X—" —to remove any possibility of misunderstanding.

However the term "the front," has a definite meaning. It is the most advanced line occupied by our own troops, that is, the line nearest the enemy. "To the front" or "towards the front" means "in the direction of the enemy," although the exact compass bearing of this direction cannot always be stated, and will vary considerably on different parts of the front. "The right (left) flank" means the flank of a line on the observer's right (left) as he faces in the general direction of the enemy. The enemy's "right" is his right as he faces us. These terms remain fixed whether the troops are advancing or retreating. Thus in retreat, the right flank is on the left of an observer facing to the rear or away from the enemy.

5. There are certain other rules as to direction which should be noted. The "head" and "tail" of a column refer to the direction of march, regardless of where the enemy may be—the head being always in the direction of movement. The right bank of a stream is on the observer's right as he faces downstream. The right of the road means on the observer's right in the direction of his movement. To avoid any possibility of ambiguity compass directions may be used, as "the north side" of the road.

6. Time should always be given as clock time of a clock or watch running on standard time, the day being divided into two periods of 12 hours each, known as AM and PM. "Local time," "sun time," "daylight saving time," should not be used, as they inevitably cause confusion.

Noon and midnight should be expressed as "12 noon" and "12 midnight," respectively, and not as "12 M," which is ambiguous. Midnight is identified thus: "12 midnight, June 2-3." This means midnight between June 2 and June 3. A night period extending from before midnight until after, is expressed, "Night of June 2-3."

7. Give standard times rather than use such expressions as "daylight," "sunrise," "dusk" and "dark." These expressions are uncertain. No two people will agree as to the exact instant when it is "dark," and if the day be cloudy the time of sunrise is a matter of conjecture. In preparation of orders it is frequently necessary to know the times of sunrise and sunset, and the phase of the moon. These may be determined from an almanac.

8. Days of the weeks are not used in orders, but dates are expressed as "June 2, 1930," or "2 June 1930."

9. The names of localities should be printed in full in CAPITALS, thus: GETTYSBURG, PA.

10. A road is designated by naming two or more important towns thereon, covering at least the portion of the road referred to, thus: "The LEAVENWORTH-LOWEMONT-ATCHISON road." The number of places named should be sufficient completely to identify the entire road.

11. Localities of military importance should be described so that they can be identified both on the map and on the ground, thus: "The ADAMS farmhouse (first house south of SILVER RUN on the west side of the JONESBORO-WESTON road)," "ROAD JUNCTION 621 (2000 yards due west of the center of POTTSTOWN on the road to OAK CENTER)."

If "gridded" maps are available, localities are accurately described by using rectangular co-ordinates.

As a rule any locality of relatively small general importance may be identified by:

a. The local name.

b. A brief description of the locality.

c. Its direction and distance from some important point nearby, which can be positively identified both on ground and on the map.

12. The excessive use of abbreviations, especially of initial letters, is to be carefully avoided. None but the so-called "authorized abbreviations" should be used. These will include:

a. The months of the year (Jan., Feb., etc.).

b. AM and PM—meaning before and after noon.

c. Certain abbreviations for military organizations and titles (Cav., Inf., Arty., Brig. Gen., etc.).

d. Abbreviations for localities, habitually employed on the maps in use, notably the names of state (N. Y., TENN., etc.), and such expressions as CUMBERLAND MTS., APPOMATTOX C. H. (Cumberland Mountains, Appomatox Court House).

13. The correct military words and expressions should invariably be employed in conveying military information. These constitute a language in themselves, which can be learned only by study, practice and experience. The more important of these terms in their correct application will be found throughout this course. A few examples will suffice to indicate the importance of correct use of military terminology. Do not say "the distance between" two organizations on the same line. Space measured parallel to the front is known as "interval," not "distance." Do not speak of the "sector" of a unit in attack. Sector refers to defense. The lane in which a unit attacks is called its "zone of action." Do not say that a column will "pass" a certain point at a certain time when you wish it to "clear" the point at the time stated. The expressions "precede" and "follow' have a military meaning in addition to their ordinary meanings. When one organization "precedes" another in column it usually means that the organization in front maintains the prescribed distance from the one in rear, and conversely when the term "follow" is used.

Amount of Detail in an Order. Two excellent general rules have been enunciated as to what should be included in orders:

1. Give to your subordinates the information and instructions necessary to insure that they will intelligently carry out your wishes—and no more.

2. Do not trespass on the province of a subordinate. The order should contain everything that is beyond his independent authority or individual responsibility, and nothing more. Tell your subordinates exactly what you want them to do, but not *how* to do it.

Orders frequently are merely brief messages written on the prescribed message blank or when none of these blanks is available on a piece of ordinary paper but in accordance with the form for messages.

Such an order, omitting the heading and ending of the message might be:

"Artillery fire will be placed on hill in your front at 10:25 AM. Resume attack at 10:30 AM."

This brief type of order, delivered from time to time as necessary, is known as a fragmentary order. It is used only when conditions do not permit the issue of a complete order.

Illustrative Incorrect and Correct Oral Orders.

(Troop in attack, combined action.)

Situation. A troop on an aggressive independent mission to clear a route of march is confronted by a dismounted force estimated as an infantry rifle platoon. Prompt action is required to dislodge the hostile force.

The troop commander after a hasty reconnaissance estimates the situation and decides upon the following plan:

1. To attack at once, from the present position and the edge of the nearby woods, to envelop the enemy left and rear and drive the enemy from his position.
2. To have the 1st platoon, with its machine-rifle squad, attack dismounted from the low ridge to immediate front, as pivot.
3. To have the 1st platoon initiate the attack as soon as in position.
4. To have the 2d and 3d platoons, in that order, deliver a mounted attack in column of platoons from the edge of woods to the right front.
5. To have the machine-rifle platoon (less one squad) support the attack from positions on the small knoll to the right front.
6. To accompany the rear platoon of the maneuvering force.

The troop commander assembles his platoon leaders and first sergeant under cover of the small knoll to the immediate right front, from which the terrain over which the attack will be made, may be seen, and issues an oral order.

Incorrect Order. "This troop launches[1] an attack at once by combined action from this ridge and the front edge of those woods (pointing). We envelop the enemy left and drive him from his position.[2] An enemy infantry rifle platoon is firing from a position near the top of that low hill to our front (pointing).[2] No other hostile troops are known to be near. The remainder of our squadron is about 15 miles to our rear.[2] The 1st platoon, with its machine-rifle squad, will attack[3] from this low ridge. It will attack when ready. Formation: Line of troopers, at 10 yards; one machine rifle to each flank squad.[4] The 2d and 3d platoons will move under cover of that draw (pointing) to the edge[5] of those woods (pointing). From there they attack mounted.[6] Formation, column of platoons,[7] platoons in line of troopers, 2d platoon leading. Any questions? Move out."[8 9 10]

NOTES. [1]Verbose. "Attacks" is sufficient.
[2]In formation of the enemy and of supporting troops should be given first.
[3]Mounted or dismounted? Order does not state.
[4]Omit. This prescribes *how* a subordinate is to accomplish a mission.
[5]Which edge of the woods?
[6]Better to give a specific objective for the attack of the maneuvering force.
[7]What distance between platoons?
[8]What mission does the machine rifle platoon carry out? Order does not state.
[9]Where will the troop commander be? Order does not state.
[10]Test of order: Is the plan covered and clearly described?

Correct Order. "An enemy infantry rifle platoon is firing from a position near the top of that low hill to our front (pointing). No other hostile forces are known to be near. The remainder of our squadron is about 15 miles to our rear.

"The troop attacks at once by combined action from this ridge and the front edge of those woods (pointing). We will envelop the enemy left and rear and drive him from his position.

"The 1st platoon, with its machine-rifle squad, will attack dismounted from this low ridge, as pivot. It will attack when ready.

"The 2d and 3d platoons will move under cover of that draw (pointing) and the front edge of those woods (pointing). From there they attack, mounted, the

enemy left and rear. Formation, column of platoons at 60 yards, platoons in line of troopers, 2d platoon leading.

"The machine-rifle platoon (less one squad) will support the attack from positions on this knoll.

"I shall be with the 3d platoon.

"Any questions?

"Move out."

Battlefield Leadership.

When studying combat principles and their application to assumed situations the military student often loses sight of the fact that if he were actually meeting the situation on the battlefield he would be dealing with men—flesh and blood men—under great stress. He fails accordingly to realize that their power to act in the right direction under this stress is limited and that this power may be entirely wasted through his own incompetence or as a result of his own neglect. In every assumed situation the student should, therefore, visualize in detail every member of his unit to the end that he may adequately prepare himself to be a leader of men in the real situations which are ever present on the battlefield.

The real leader is the one who takes his men into battle with their fighting powers at a maximum and who at no time unnecessarily reduces these powers. The building up of a strong fighting unit occupies the leader's attention *before* the battlefield is reached and consequently is not within the scope of the subject being considered. It is solely with the wise expenditure of these powers in the immediate presence of an enemy that we are here concerned.

Man's endurance depends upon his physical condition and his will. The thoughtful leader by foresight and planning takes no steps that will unnecessarily impair the former while he seeks constantly for ways and means to strengthen the latter.

A common and costly mistake made by the untrained leader is to commit his troops to action in a wrong direction. This results in unnecessary fatigue, avoidable casualties, loss of confidence in him, and lessened will power. This error is seldom made by a leader who remains well to the front of his command in continuous observation of the situation and the terrain. No important decision should be made by a small unit leader in battle without a personal reconnaissance when it is possible for him to make one.

Another common mistake of the untrained leader is to tell his subordinates not only what to do but exactly how to do it. This is a mistake except in the rare case where the subordinate cannot be depended upon to perform satisfactorily the duty assigned him and where no reliable man is available to take his place. The will of the enemy creates conditions which cannot be anticipated. The commander of each element should be told clearly what he is to do. The methods to be used should be left to him.

A leader is responsible to his immediate commander for the success or failure of the leader's unit in battle. He is judged by this criterion alone. If he fails he should offer no excuse. The leader who seeks to lay on a subordinate the blame for the failure of the former's unit quickly loses prestige with all ranks and particularly loses the confidence of his own men. The ability to take responsibility is usually the mark of the real leader of men.

Hints for the Solution of Tactical Problems.

The following hints and suggestions on the solution of practical problems in tactics, will be found helpful to the student and to actual leader of troops:

1. Read the problem carefully several times, or pay close attention to the instructor (if the situation is given orally). Stake out the position of the troops on the map or sand table.
2. Note carefully what the problem calls for and give neither more nor less.
3. Determine your mission, bear it constantly in mind, and make it your

guide in every situation. Lay only those plans and issue only those orders that are in accord with your mission. If you fully understand your mission you can state it clearly in words. Be sure to do this.

4. Estimate each situation rapidly, but not carelessly. Concentrate on the important things and do not waste time on those which are unimportant. Do not jump to conclusions and do not guess.

5. In estimating a situation form the habit of thinking in the sequence given in this course.

6. Pay close attention to matters of position and direction, time and distance. There can be no excuse for not knowing such facts as where you are and how long it will take you to reach a certain place. Time and space are often the controlling factors in a situation.

CHAPTER III.

ROLE OF CAVALRY.

Cavalry has specific and important roles to fulfill in compaign. It is the agent par excellence for ground reconnaissance; for screening wide fronts or large areas; for exploiting an infantry "break through"; and for pushing a determined and energetic pursuit. Moreover it has wide use in covering the exposed flanks of infantry during battle; in seizing important ground and holding it pending the arrival of friendly infantry; in taking part in battle, mounted, or dismounted, as part of an infantry command in attack or defense; and finally in countering all efforts of the enemy's mounted forces.

Recent developments in the fields of aviation, automatic weapons and of motor transportation have enhanced rather than diminished the value of cavalry. The addition of the airplane, the motor-truck, the cross-country car and the armored car to the organizations of its larger units has materially added to the mobility of cavalry and increased its range; the inclusion of the machine-gun, the machine rifle, the one-pounder, the 75-mm. gun, the tank and the armored car have greatly increased its fire power.

Cavalry, by keeping pace with modern development in other fields, has not only retained its utility, but has also increased its range and effectiveness.

Although there are many means of transportation more rapid than the horse, none of them can completely replace him in war. Mud, snow, and shell torn roads still hold their terrors for the motor vehicle, while fog and low visibility often render impotent the best efforts of the air force. The horse and mule can still work efficiently under these most trying conditions.

Characteristics of Cavalry.

The principal characteristics of cavalry may be briefly summarized in the terms: *Mobility, fire power,* and *shock.*

Mobility. Mobility is a relative term. It does not mean absolute speed of movement. It has much broader meaning. It applies, rather, to the ability of cavalry to march long distances in a relatively short time as compared to the time required by infantry to cover the same distance. It applies to the ability of cavalry to operate readily over all sorts of terrain, and in all sorts of weather, and finally to the ability of cavalry to maneuver rapidly on the field of battle. The mobility of cavalry on the battle-field disconcerts the enemy, disrupts his plans, upsets his formations and is a strong factor in overcoming his resistance.

Fire Power. Fire power seeks to immobilize the enemy, to diminish the effect of his fire, to break up his formations, delay his progress and finally to destroy him. The movement of troops on the battlefield, particularly that of a maneuvering force, it is largely dependent upon fire power. Hence cavalry, to retain its inherent mobility in combat, must have at its disposal the greatest fire power consistent with rapid movement.

The basic weapons of the individual cavalry trooper are the rifle, pistol and saber. Certain auxiliary weapons make their appearance in the larger cavalry units. In the regiment we find the machine gun and the 37mm. gun; while in the division, artillery, armored cars, airplanes and tanks with their armament, become an integral part of that unit. The sum total of the basic fire arms, plus the auxiliary weapons present, constitute the fire power of the unit.

Shock. By shock we mean the impact of actual mounted collision. History shows that greatest shock results from a close-order surprise attack made at speed by a mounted mass. In this type of action the elements of mass, speed and surprise are essential.

In modern warfare the opportunities for mounted shock action become increasingly less frequent for the larger units, due principally to the fire power encountered, and to the difficulty of obtaining surprise. These opportunities, however, will still present themselves and should be eagerly seized upon by the cavalry leader. In minor actions, especially, the cavalry charge coming as a surprise, and delivered with spirit, will frequently achieve success at less cost than any other form of action which could be employed.

Basic Principles of Cavalry Action. The proper employment of a cavalry unit in active operations requires that the commander take as full advantage of its inherent characteristics as may be possible under the conditions imposed by the situation. For this reason, therefore, a cavalry commander should strive:

To preserve his mobility, being careful while so doing, to avoid dispersion.

To make the utmost use of the fire power at his disposal.

To make bold and aggressive use of shock action, in situations favoring this type of combat.

Types of Cavalry Action.

A cavalry force may engage the enemy in three different ways, viz., by means of mounted action; dismounted action; and combined action.

Mounted Action. An attack delivered mounted, no element being employed dismounted, is classed as "mounted action." Here chief reliance for success is placed upon surprise, speed, and mounted fire and shock effect.

Dismounted Action. When no part of an attacking force is employed mounted, the operation naturally falls under the classification "dismounted action." Here fire power, and a superiority in strength, determination and morale, are relied upon to gain a decision.

Combined Action. The two types of action just described are exceptional with cavalry. Neither employs to the fullest extent all the characteristics inherently pertaining to cavalry. In the first case, fire power is subordinated to mobility; in the second instance, no advantage at all is sought from superior mobility. Circumstances, however, may justify the employment of either of these two types of action.

Cavalry welcomes the more usual situation in which a combination of the two types of action is possible—so that full advantage can be taken of fire power, mobility, shock and surprise.

In combined action, cavalry establishes a dismounted fire element, termed the "Pivot," which by means of fire and movements keeps the enemy occupied, pins him to the ground, and prevents him from shifting his position. The pivot is in reality a holding force entrusted with a secondary or subordinate attack. The main blow is delivered by the bulk of the force, which maneuvers rapidly to an advantageous position on the flank, and then makes a mounted, surprise attack against the flank and rear of the enemy. The element making the main attack is the "Maneuvering Force." A third element, "the Reserve," is held by the commander in a suitable location to be used by him, if necessary, in a crisis.

The combined action, therefore, employs three groups: the pivot, the maneuvering force, and the reserve. This is the usual type of cavalry action. (See Plate 1).

Choice of Weapons and Formations.

The commander of any unit about to enter a mounted action must include in his plan a provision for the formation to be adopted and the weapons to be used. The following summary of characteristics of weapons and formations may be helpful in arriving at a decision as to their use.

The Saber. The saber is used against individual objectives in conjunction with the horse to supplement the shock effect of the latter. It should be used whenever it is desirable to avoid the sound of firing. It finds its greatest usefulness, perhaps, following a pistol attack. When pistols have been emptied,

individual troopers instinctively resort to the use of their sabers to complete the action. Greatest effect from a saber attack is gained by a charge in close-order line; a line of troopers, however, may employ sabers as the primary weapon of attack.

The Pistol. The pistol is used at very close range against both individual and collective targets. Its characteristic employment by cavalry is in mounted firing, with the horse usually moving at a rapid gait. The effectiveness of mounted pistol fire against individual targets decreases rapidly at ranges greater than 10 yards. Against charging cavalry armed with pistols or saber, however, pistol fire may be opened when the range between the two opposing lines has been

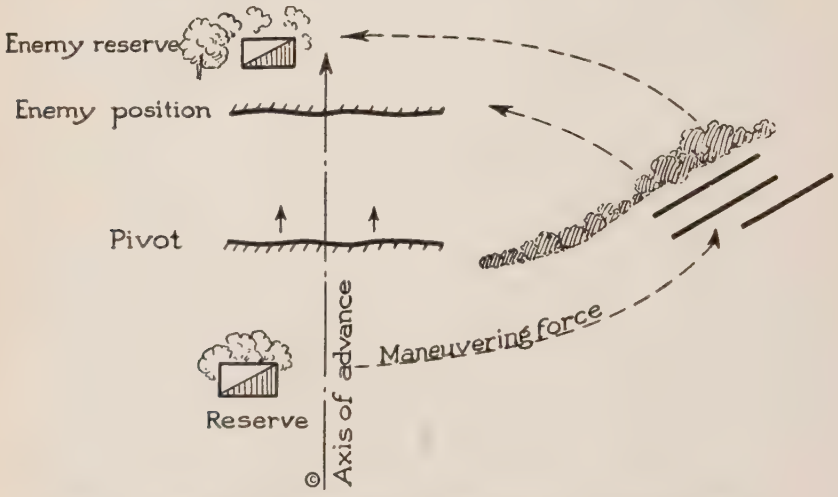

Plate 1. Combined (Mounted and Dismounted) Action, Showing Pivot, Maneuvering Force and Reserve.

Notes. The *Pivot* holds the enemy in place and by fire and movement keeps him occupied. The *Manuevering Force* moves under cover to suitable line of departure from which it launches a determined attack against enemy flank and rear. The *Reserve* is held in some suitable location from which it can be employed as demanded by the situation. In the case of small forces, the reserve is located close to the main effort; with larger forces the reserve may be held near the axis.

reduced to about 25 yards. The pistol may be used in all close or extended formations, as in emergencies where the unit has to charge in column of fours or twos. When in doubt as to which weapon to use, the leader should order the one in which he and his men have the most confidence.

Factors Influencing Choice. As a rule the character of the opposition to be met influences to a large extent the method to be employed, and the weapons to be used in overcoming it. For example, *a pistol charge* is effective against enemy lancers. Fire is opened at 60 yards in order to demoralize the hostile attack. Several shots are reserved by each trooper for use at close range (5-10 yards). *A pistol charge in line of troopers* is effective against a mounted pistol attack by the enemy.

Formations. *A line of troopers,* or several successive lines or waves of troopers, is the formation most suited for attacking infantry, machine guns or artillery. Such a wide-spread formation coupled with speed of movement presents a poor target to enemy fire.

Any formation which provides cohesion and shock is effective for use against hostile cavalry. For this reason a line formation is particularly adapted to engagements of this kind. A line of troopers, line of squads or close-order line may be employed.

CHAPTER IV.

ADVANCE GUARD.

The tactical employment of small cavalry units is perhaps best studied in the operations of reconnaissance patrols, to which we have heretofore devoted considerable space. (See Scouting and Patrolling). Much may also be learned from a study of small units used on security duties, particularly advance guard duty.

Definition. A security detachment which closely precedes the main body on the march is called an *Advance Guard.*

Mission. The principal duty of the advance guard is to insure the uninterrupted march of the main body. This is accomplished:

(1) By pushing aside all enemy bodies, within its power, that seek to block the progress of the main body.

(2) By removing all obstacles which the enemy has constructed to block the forward movement of the main body; and also by overcoming any natural obstacles encountered.

(3) By holding in check any hostile force too strong to be brushed aside, until the main body has time to prepare for action.

Advance Guard Action. An advance guard, upon meeting the enemy, may employ any of the three types of action just described. The type employed being dependent upon the size of the forces engaged, the terrain, the time element involved, surprise; in fact upon a multitude of factors which may enter the particular situation.

It is evident that an advance guard as small as a squad could not, in itself, employ combined action. Its proper course would be either to make a mounted charge against a small mounted enemy group; or to establish a dismounted pivot with the entire squad, about which the main body could maneuver. Large advance guards, on the other hand, can cope with larger enemy forces, and have sufficient strength in themselves to employ combined action. Frequently an advance guard meets a hostile force too strong to be brushed aside without help from the main body. In this case the advance guard forms the pivot, and the main body furnished the driving power to dislodge the enemy.

Size of Advance Guard. While there is no hard and fast rule as to the size and composition of an advanced guard, the following table may prove a useful guide in making a decision.

Main body.	*Size and composition of advance guard.*
Platoon.	Half squad or squad.
Troop.	Squad.
Squadron.	Platoon, with machine-rifle squad attached.
Regiment.	Troop. Machine-gun platoon, with 37 mm. gun squad attached.

Advance Guard Subdivisions. A large advance guard is subdivided into two principal elements, viz., a *Reserve* and a *Support.* The support precedes the reserve on the route of march. The support commander causes a small fraction of the support, called the *Advance Party,* to move in advance of his unit. The advance party, in turn sends forward a small security detachment, called the *Point.* Hence the various subdivisions of an advance guard, arrange in order of march, from front to rear as follows: Point, advance, party, support (less advance elements), and reserve.

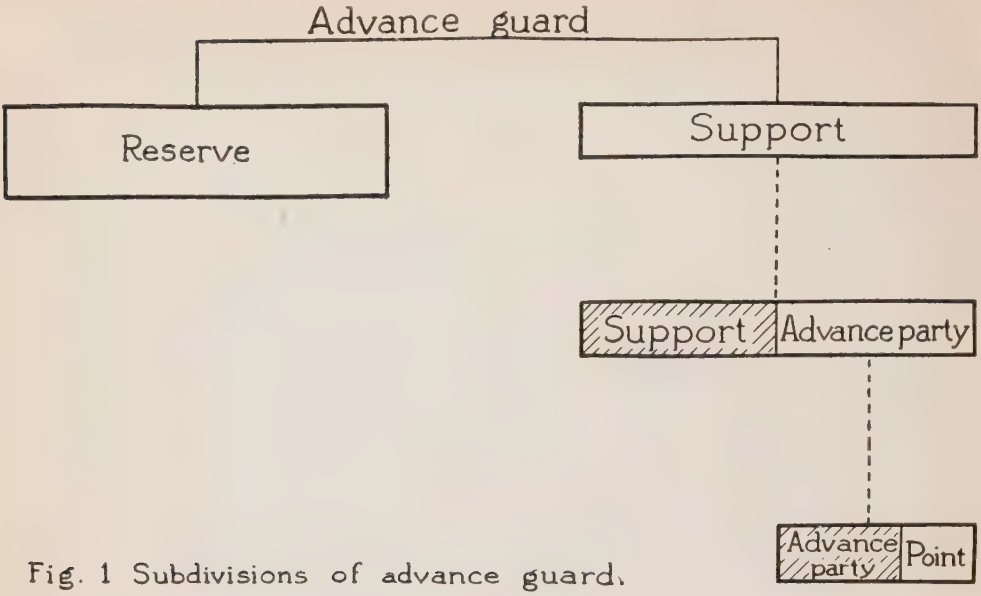

Fig. 1 Subdivisions of advance guard.

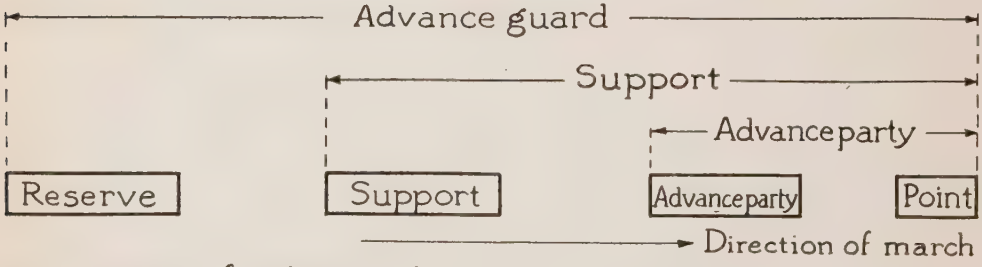

Fig. 2 Extent of authority of subdivision commanders.

PLATE 2. Subdivisions of the Advance Guard and Extent of Authority of Subdivision Commanders.

TABLE SHOWING SIZE OF ADVANCE GUARD.

Size of Main Body	*Size of Advance Guard*	*Subdivisions of Advance Guard*
Troop	One-half squad or squad.	Point (squad)
Squadron	Platoon, with machine-rifle squad.	Point (squad) Advance party [platoon (less squad) with machine-rifle squad]
Regiment	Troop, and machine-gun platoon.	Point (squad) Advance party [platoon (less squad) with machine-rifle squad] Support [one-half troop (less 1 platoon and machine-rifle squad)] Reserve [troop (less one-half troop) machine-gun platoon and 37mm. gun squad.]

Small advance guards naturally do not contain all these elements. A war-strength troop (four platoons and a machine-rifle platoon of four squads) is the smallest advance guard that would contain a reserve, the rule being that the rearmost element is the first one eliminated from the composition of small advance guards. Plate 2 shows disgramatically the organization of a typical advance guard, showing the subdivisions of the advance guard and the extent of the authority of the subdivision commanders.

Advance Guard Distances. The various subdivisions of an advance guard are separated one from another by distances whose limits vary considerably with the size of the force considered, the character of the opposition expected, the weather, terrain and the time of day.

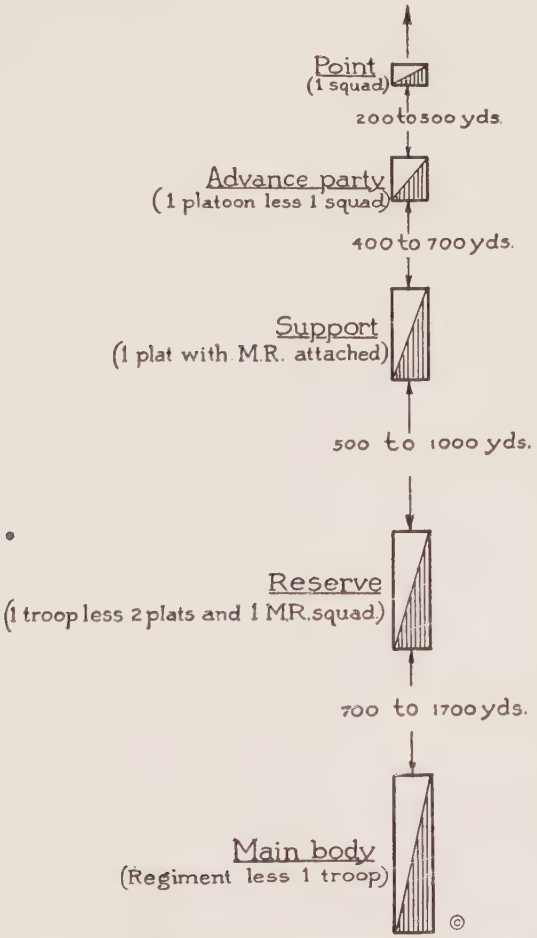

PLATE 3. Minimum Distances Between Elements of the Advance Guard.

A common-sense rule concerning these distances requires that from *point* to *main body* the total distance must be such as to prevent the latter from coming under:

(a) Effective small arms fire (In a small force).
(b) Effective observed artillery fire (In a large force).

Advance guard orders usually prescribe the minimum distances between the several subdivisions of the advance guard. Inasmuch as each advance guard element advances by bounds, the actual distance at any moment between any

two elements during the march is a factor which varies continuously between the mimimum distance prescribed, and approximately double that distance.

The minimum distances between the several advance guard elements are shown in Plate 3.

Distances may be decreased for units operating in darkness, thick weather or in close country.

The larger the advance guard, the greater will be the minimum distance to be observed between its subdivisions. The left-hand column of distances is applicable to small advance guards; the right-hand column, to larger forces.

The table given above is intended to serve merely as a guide, and not as a hard-and-fast rule to be blindly observed.

Duties and Limits of Activities of Advance Guard Elements.

The Point. The point operates as a patrol. Its march is limited to a definite route of advance called the axis. When contact with the enemy is gained, it clings tenaciously to this axis, so that the head of the main body following it will never be uncovered. It reconnoiters the route of advance, and to a distance of 300 yards on either side of the line of march. It moves rapidly (bounds) from one observation point to another, seeking not only to gain early information of the enemy, but also to deny him favorable locations for observing or

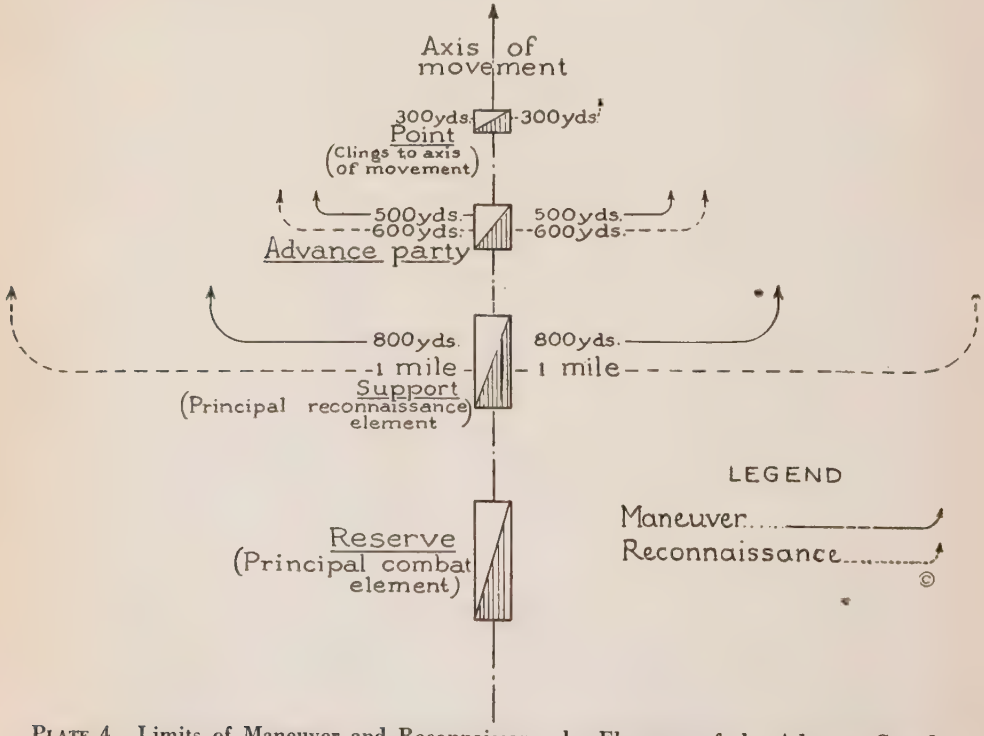

PLATE 4. Limits of Maneuver and Reconnaissance by Elements of the Advance Guard.

firing upon the main body. Encountering small bodies of the enemy, the point attacks them vigorously. Its movements are characterized by aggressiveness and boldness, induced to a great extent by the knowledge that its action will be supported by the larger groups in rear. (See Plate 4.)

The Advance Party. The advance party maintains connections with the point and assists it in overcoming resistance encountered along the route of advance. In order to dislodge an enemy force too strong for the point to handle

unaided, the bulk of the advance party may maneuver to a distance of 500 yards on either side of the axis. If serious opposition is encountered it reinforces the *pivot,* established by the point, and covers with its fire, and patrols to both flanks, the employment and attack of the remainder of the advance guard. It may reconnoiter to a distance of 600 yards on either side of the route of advance. (See Plate 4.)

The Support. The support, essentially the reconnoitering element of the advance guard, maintains connection with the advance party, and assists it in overcoming resistance, and covers both flanks by means of patrols. It may leave the axis a distance of one-half mile to maneuver during an engagement. When serious resistance is encountered the whole support (point, advance party and support proper) usually establishes a pivot of maneuver for the reserve. It extends the reconnaissance of the advance party to a distance of one mile on either side of the axis. (See Plate 4.)

The Reserve. The reserve, essentially the maneuvering element of the advance guard, maintains connection with the support, and furnishes the principal combat strength for the whole. When resistance is encountered too great to be overcome by the combined elements of the advance guard, the latter establishes a pivot of maneuver for the main body. If the reserve maneuvers to one flank, it should invariably protect the main body from surprise by sending a patrol to cover the exposed flank.

CHAPTER V.

MAP EXERCISE, ADVANCE GUARD.[1]

At the outbreak of hostilities, the cavalry commander is required to locate the enemy within, and drive him from, certain territory.

General Situation. A Blue reinforced cavalry brigade (2 regiments of cavalry and one battalion of horse artillery) bivouaced at 5:00 PM today (see Plate 5. General A learns through his air force that enemy forces of unknown strength and composition began arriving at 3:00 PM today in the vicinity of J (see Plate 5). He sends out reconnaissance patrols to secure more detailed information of the enemy. General A decides to march on J at 7:00 AM tomorrow in two columns, one on road A-C-O-I, one on road K-L-M-N.

In this exercise, we shall accompany the point of the advane guard which precedes the column marching on road A-C-O-I.

Order to Point Commander.

The advance party, consisting of one platoon, sends forward one complete squad under the command of Sergeant P as point. The lieutenant in command of the advance party instructs Sergeant P as follows:

"Enemy forces of unknown size are reported digging in about 35 miles to the north. A reconnaissance patrol is reconnoitering to our front.

"This regiment marches at 7:00 AM on J via A-C-O-I to locate the enemy and drive him to the north.

"Sergeant P, you will command the first squad as the point. Follow the road A-C-O-I. Move at 5 miles per hour. You will precede the advance party at not less than 300 yards. I shall be at the head of the advance party.

"Any questions?

"Move out at my signal."

Conduct of the Point.

Situation 1. The march is commenced on time. The point adopts a normal patrol formation; odd numbers moving along one side of the road, even numbers on the other side. It regulates its movements upon the unit next in rear, being careful to keep at least the prescribed distance ahead of the advance party. It is especially necessary that the rear set of twos keep a sharp lookout to the rear so that the point can quickly conform to any change in gait on the part of the advance guard. The patrol reaches a point about 1000 yards south of the crest of hill "A" (Plate 26). The entire column is at the moment advancing at the walk.

Requirement. Method by which point approaches hill 'A'.

Solution. The point takes up the trot, and rapidly gains the crest, the sergeant and leading trooper preceding the remainder of the patrol for a survey of the terrain beyond the hill. All dismount, thus resting the animals, and wait until the advance party approaches the minimum prescribed distance of 300 yards. The point then resumes the march, at the gait of the column.

Discussion. Although the duty of the troops in the advance guard is arduous, men and animals may be considerably rested and refreshed by taking advantage of every such opportunity to dismount and rest.

Situation 2. As the point nears the bridge about three and one-half miles beyond hill 'A', the sergeant signals for the small patch of woods to be reconnoitered. The third set of twos (previously designated to perform all flank reconnaissance to the left) moves into the woods. The troopers on this mission

[1]NOTE. This is a continuation of the situation given in the Reconnaissance Patrol problem in the course in Scouting and Patrolling.

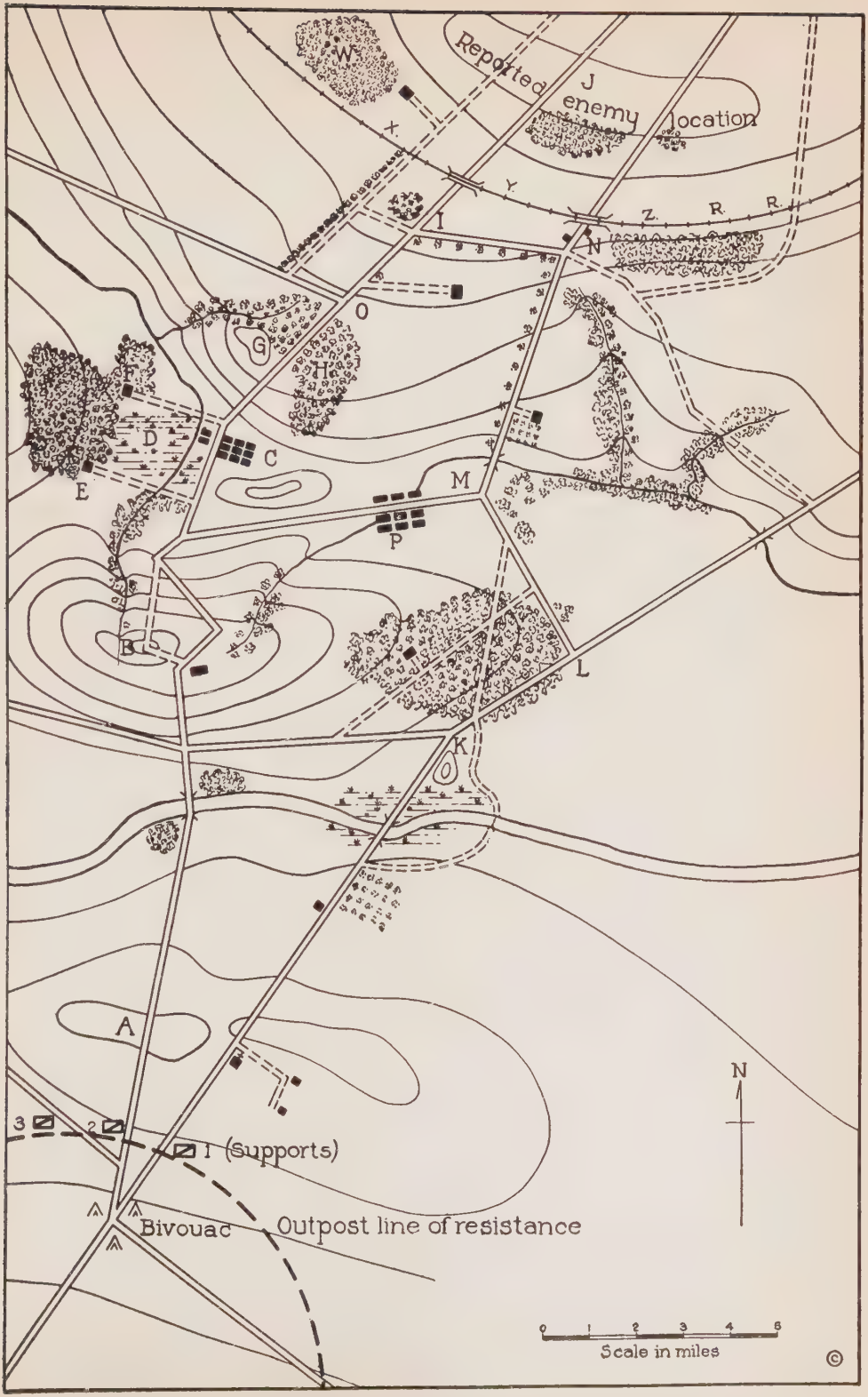

PLATE 5. Map Exercise, Advance Guard.

take care not to go more than 300 yards from the axis, and never to get out of sight of the remainder of the point.

When the main body nears the bridge it stops for the first hourly halt of the march. Signals are relayed to the advance guard, which prepares to conform. During halts the advance guard commander is responsible for the safety of the head of the main body, as he is during actual movement of the column.

Requirement. What precautions are normal to protect a column from surprise during a short halt in the course of a march?

Solution. A march outpost is habitually posted.

Discussion. A march outpost is usually established by an extension of the support. In this particular case, sufficient protection would be afforded by posting the point about a quarter of a mile north of the crossroads, and detachments of a half-squad each on the transverse road a half-mile to the east and to the west of the axis. If the force we are considering had any armored cars attached, a platoon of four of these cars attached to the advance guard would probably have preceded the column. During the hourly halt this platoon from the highway on top of hill 'B' would afford additional protection to the column. Armored cars in work of this kind conserve horse-flesh. They perform much of the flank reconnaissance ordinarily done by the mounted man, and add to the security of the whole command by giving much more timely warning of any hostile movement than is possible for a mounted patrol.

Situation 3. After a ten minute halt the march is resumed. The point has just reached the crest of the hill 'B' ridge. The sergeant, peering over the top, notices an enemy mounted squad on the road in patrol formation about half a mile to the front, and apparently unaware of the presence of the point.

Requirement. The decision of Sergeant P.

Solution. Sergeant P decides to signal back the information and to make a surprise pistol attack upon the oncoming hostile patrol.

Discussion. The enemy patrol is a force which can be adequately handled by the point. The latter has every advantage in its favor; position, preparation and surprise. To dismount and open fire upon the enemy might cause delay to the whole column, and eventually to be avoided whenever possible. To dismount and fight upon every occasion is not particularly good for the morale of the mounted soldier. Boldness and vigor in attack, rapidity in thought and action, are attributes of the cavalryman which must be encouraged by seizing every favorable opportunity for mounted action. Before attacking, however, the sergeant must signal back the information he has gained.

Situation 4. The situation remains unchanged.

Requirement. Actions and orders of Sergeant P following his mental decision to attack the enemy patrol.

Solution. Sergeant P moves a few yards below the ridge top and signals for the members of the point to assemble around him. When the latter are within hearing distance he issues the following orders:

"Enemy patrol, 8 men, in column of twos on either side of the road, are about 600 yards beyond of this hill. They are moving toward us on this road.

"We attack in line with pistols when the enemy patrol gets within 100 yards of us. Pursuit to one mile.

"Form line just below this ridge and wait for my signal."

Sergeant P signals back: "Enemy in sight in small numbers."

Discussion. In this situation the sergeant has plenty of time to explain the situation to his men. Had the enemy been very much closer when discovered, Sergeant P would probably only have had time to command "Pistol attack. Follow me," and to move against the enemy at a gallop.

The other members of the point, in this case, would have conformed to the movements of their leader.

Situation 5. No change.

Requirement. When does the squad open fire with the pistol?

Solution. Fire is withheld until within 5 or 10 yards of the enemy. Effectiveness with the pistol against individual targets decreases rapidly at ranges above 10 yards.

The tactical employment of the pistol is therefore, more nearly analogous to that of either the saber or the bayonet than to that of the rifle.

In this situation, if the enemy patrol elects to charge the point, fire may be opened at a range slightly greater than 10 yards—but not over 25 yards. If the enemy patrol turns and flees, greater effect will be gained by withholding fire until the enemy troopers have been overtaken.

Situation 6. The Advance Party. Let us turn our attention for a moment to the advance party as it moves along the route of march. The lieutenant in command of this unit notices a small patch of woods to the left of the road, and above 500 yards from it. This wooded clump could easily conceal an enemy detachment which, if not discovered by the advance guard, could open fire at effective range upon the main body. As it is beyond the reconnaissance limit of the point, the advance party commander feels it necessary for his unit to investigate. He accordingly sends a half-squad (four men) to reconnoiter the patch of woods, and then rejoin the advance party.

Requirement. Method of reconnoitering the small wood.

Solution. The half-squad with extended intervals gallops towards the woods. It passes through the trees, maintaining the formation line of troopers until it reaches the farther edge. Pistols are raised and held ready for instant use throughout the operation. The patrol, in column of twos, then returns at the trot to take its place in the column.

Discussion. The patrol adopts a rapid gait in approaching the woods for two reasons; first to gain its objective quickly, accomplish its mission and then rejoin the advance party without losing much distance; second, to diminish the effect of hostile fire should the woods be occupied. The spread-open formation is also adopted for two reasons—to diminish the effect of hostile fire, and to cover the entire patch of woods in moving through it.

OUTPOST.

When a unit not engaged in combat, is halted or stationary, a portion of the unit is posted between it and the known or supposed position of the enemy as a security detachment. Such a detachment is called an **Outpost.** The covering detachments for troops stationary in line of battle are called **combat outposts.** During the halts of a column on the march it is protected by temporary covering groups known as **march outposts.**

Organization of an Outpost.

The general scheme of organization of an outpost for a camp or bivouac for temporary occupation includes both stationary groups and patrols. The stationary groups are disposed as follows: Farthest to the front or nearest to the enemy, is a **line of observation,** consisting of a number of small groups called **outguards.** Each outguard posts one or two men as observers and listeners, usually called **sentries.** In rear of this line of observation is a **line of resistance,** including a number of larger groups called **supports.** The supports furnish the reliefs for the outguards in front of them, and also organize and garrison the line of resistance for defense. In rear of the line of resistance is the **reserve,** in one or more groups, depending on the size of the outpost. In case of attack the reserve performs the usual functions of a reserve in combat, being utilized to reinforce the line of resistance and for counter attack.

These stationary groups are supplemented by patrols which maintain connection between the various groups and reconnoiter the intervals and the terrain

to the front. If in close proximity the enemy, the patrols gain contact with him. Cavalry is used for patrolling to the front beyond the limits practicable for infantry patrols, and to the flanks, if exposed.

These various dispositions are indicated in outline in Plate 6.

The squad will be called upon to garrison one or more of the outguards and to furnish patrols.

A complete squad, as an outguard, is called a **sentry squad.** It provides three reliefs for a double sentinel, a leader and one extra man

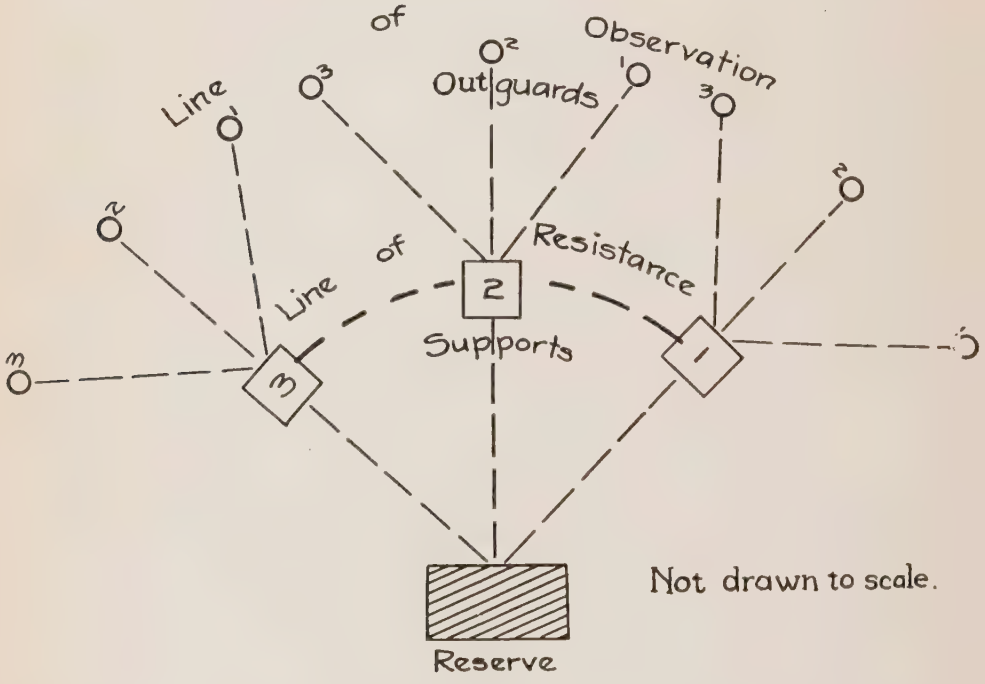

PLATE 6. Diagram of Outpost Dispositions.

An outguard of four men is called a **cossack post.** A squad can furnish the garrisons for two cossack posts (which should be adjacent to each other). A cossack post furnishes three reliefs for a single sentinel besides the leader. The squad leader commands one of the cossack posts of a squad, the second in command the other.

The outguards sent from any one support are numbered serially from right to left. (Plate 6).

The day and night locations of the outguards, and any special instructions necessary, will be given to the outguard commander. He will select the exact positions for his sentries.

The mission of an outguard is to give warning of the approach of the enemy and, when necessary, to delay his advance by firing upon him. In case of a serious attack the outguards fall back upon the line of resistance.

Each outguard is assigned a sector of the front to observe, in the same manner as a sniper's or observer's post in combat. The sentries are relieved at stated intervals, usually every two hours, and the outguard as a whole should be relieved at least once in 24 hours.

If the outguard is to resist an enemy advance by firing upon him the squad leader (or cossack post commander), selects firing positions for his men, especially the machine rifleman, if present, to be occupied in case of hostile attack.

CHAPTER VI.

DISMOUNTED COMBAT.

Introduction. Cavalry, throughout a campaign, seeks to obtain the greatest possible use from its mounts. By means of the horse, cavalry is able to cover long distances rapidly with a minimum of effort to the fighting man; to maneuver at speed on the battlefield; to close with the enemy in the fury of the charge; and finally to maintain a relentless and morale-destroying pursuit. To gain its greatest effect, however, cavalry must be used intelligently. Every encounter with the enemy does not necessarily mean a mounted combat. The terrain, the size and dispositions of the opposing forces, the mission, and a number of factors entering into a particular situation may not justify a mounted attack. The horse, in campaign, is used more frequently as a means of transportation than as a weapon of shock. Cavalry uses its mounts as long as it can do so effectively. When it is apparent that little or no good can come from further mounted action, the cavalryman quits his horse temporarily, and continues the action dismounted. The cavalry trooper, for this reason, re-

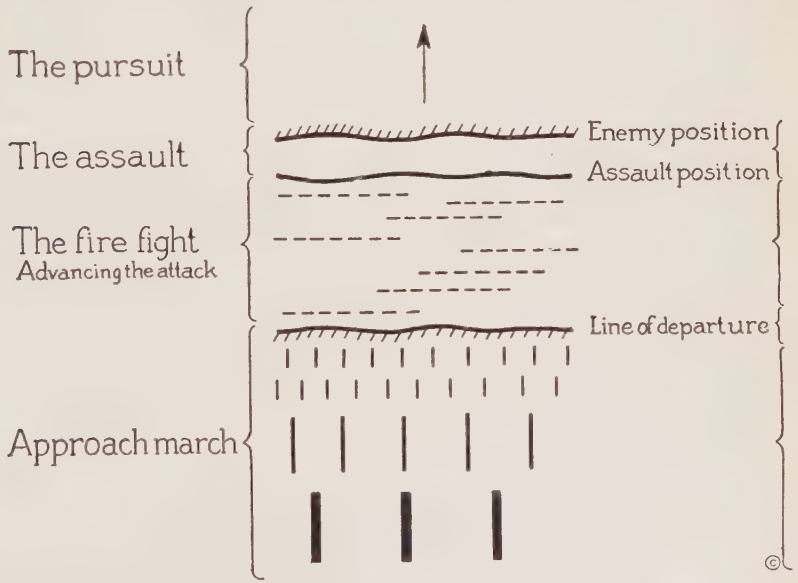

PLATE 7. Phases of a Dismounted Attack.

ceives intensive training with the rifle and pistol, and in all phases of both offensive and defensive dismounted combat.

Phases of a Dismounted Attack.

All dismounted attacks have common to them certain well defined characteristics. For purposes of discussion and study these may be grouped into four distinct phases:

The Approach March.
The Fire Fight. (Advancing the attack by fire and movement.)
The Assault.
The Pursuit.

The Approach March. The approach march includes all movements from the time the men dismount and start forward on foot, to the moment when the unit is no longer able to continue towards the enemy without the assistance of its own fire arms. During the approach march units move into the zone of effective enemy artillery fire. Lines of small columns are adopted during the approach march in order to minimize the effect of the enemy artillery fire. (Plate 7).

The Fire Fight. The fire fight includes all operations from the time the attackers open fire upon the enemy with small arms until the moment when they move to the assault. The fire fight commences when the lines of small columns enter the zone of effective enemy rifle fire. Here the formation must be extended in order to avoid heavy casualties and to permit the greatest volume of fire to be developed. Units will usually now be deployed as skirmishers in rear of some well-defined line called the *Line of Departure,* and fire commenced. The situation may permit, in some cases, a further short advance in small columns beyond the line of departure. Fire is not opened, as a rule, until troops can not move forward without its aid. The attack progresses by steady stages. One element of the attacking force advances, protected by the fire of the remaining elements. When the forward element has reached a suitable position it halts and opens fire to assist the progress of the rearward elements. When the attacking force nears the enemy, the fire of the latter becomes more effective, and the advance becomes increasingly more difficult. The size of the groups which can now move forward at one time becomes smaller and smaller, until finally it is necessary to build up a firing line by the forward movement of individual skirmishers. Fire and movement are the characteristics of this stage of the attack.

The Assault. The assault may begin when rifle groups arrive within 40 or 50 yards of the enemy position, or it may commence much farther back, say 200-300 yards away. The actual assault may be launched by order of competent authority, or it may be inaugurated by the spontaneous advance of several men or groups of men, who, carried away by the excitement of the engagement, spring up and move towards the enemy. Platoon and squad leaders, in such a case, must be quick to recognize this psychological moment, and must not hesitate to order the advance of the remaining units.

The Pursuit. The pursuit includes all the operations incident to completing the defeat of a shaken or demoralized enemy. It extends from the moment of a successful assualt to the time when men and animals have reached the utmost limit of their endurance.

The Dismounted Rifle Squad in the Attack.

The rifle squad consists of a corporal and seven privates. Depending upon the interval prescribed between individuals its deployed frontage usually varies from 35 to 50 yards. In each squad a selected private is designated as second in command, and two privates are carefully trained as ground scouts. The latter two are designated as ground scout and alternate ground scout. Their places are in the corporal's set of fours, as Nos. 2 and 3, respectively. Numbers 2 and 3 of the second set of fours are designated and trained as air scouts.

The squad deployed in skirmish line would appear as indicated in Plates 8 and 9. (assuming mounts to be linked or otherwise disposed of in rear).

Duties of the Members of the Dismounted Rifle Squad.

The duties and positions of the various members of the dismounted rifle squad during the **approach march** and the **fire fight** in an attack are briefly summarized as follows:

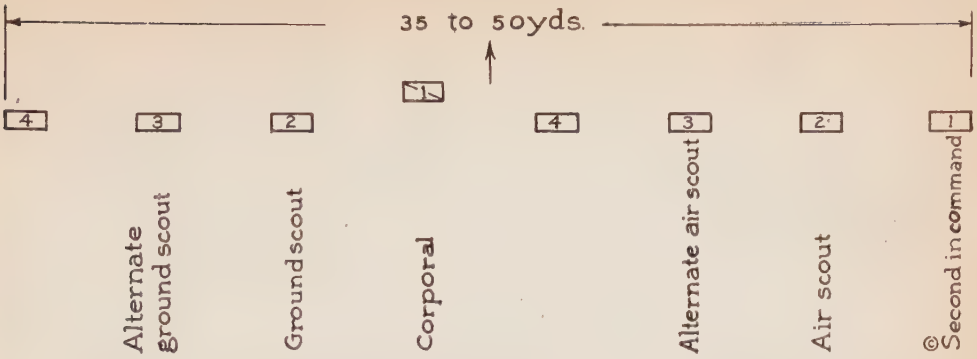

PLATE 8. Dismounted Rifle Squad Deployed in Line of Troopers, Advancing.

PLATE 9. Dismounted Rifle Squad Deployed in Line of Troopers, Halted for Fire.

PLATE 10. Dismounted Rifle Squad in the Approach March (In *Column of Troopers.*)

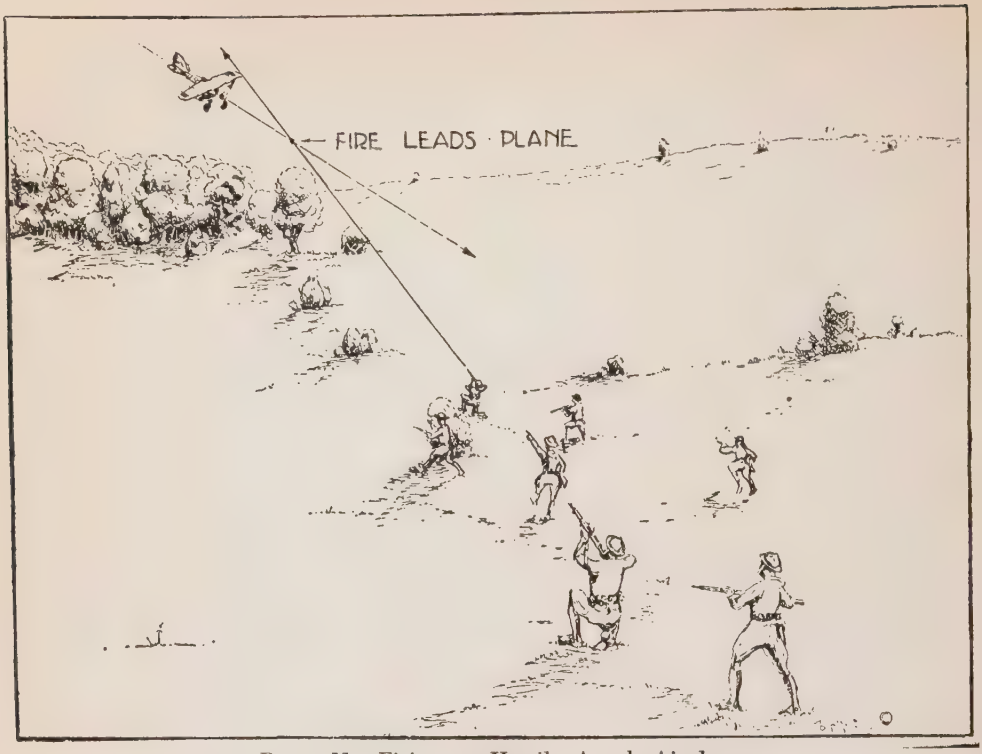

PLATE 11. Firing on Hostile Attack Airplane.

PLATE 12. Dismounted Rifle Squad Engaged in Fire Fight.

During the Approach March.

Corporal. Leads his squad. If in column of troopers the corporal is 5 yards ahead of his squad. If deployed in line of troopers, he is about 5 yards in front of the center of his squad. When the squad halts, the corporal takes the position in which he can most effectively control his unit. This may be in the line, or in rear of it. The corporal selects routes of approach for his men, picks out suitable cover and regulates their movements.

Second In Command. The second in command follows the squad in all its forward movements to prevent straggling, losing of equipment and other breaches of discipline. In column of troopers he is the rear trooper. He follows about 3 yards in rear of the squad deployed in line of troopers. When the corporal leaves the squad for any reason, the second in command assumes charge, and fulfills the duties of the corporal.

Scout. The squad ground scout precedes the advance of a deployed squad. He operates from 50 to 500 yards in front of his unit. In rugged country, in fog or at night the shorter distance is maintained; during the day and in open country the greater limit may be safely approached. He acts as an advance guard for his squad, protecting the latter from surprise, and gaining information of the terrain over which his squad must pass. His steady advance causes the enemy to disclose its position by firing upon the scout. He is informed of the mission of the squad and the plan of the squad leader for carrying it out. He is usually given a visual direction or a compass direction upon which he is to march. His movements may also be controlled by signals from the squad leader. In any case the scout must maintain visual contact with the squad leader, and must constantly look toward him for signals.

Alternate Scout. The alternate scout remains in line with the rest of the the squad until ordered forward by the leader. He may be sent forward to assist the scout in reconnaissance, especially in dense country. He assumes the duties of the scout if the latter becomes a casualty.

Air Scouts. The air scouts are charged with the responsibility of giving timely warning of the approach of hostile aircraft. All members of the squad return the fire of an enemy attack plane (see Plate 11).

During Fire Fight.

Corporal. During the fire fight (Plate 13), the squad leader, except when actually on the firing line enforcing fire discipline or giving instructions, takes position where he can:

See the ground to the front and the enemy position.
Be able to talk to and personally control all of his men.

The squad leader observes the fire of his men, noting particularly that they have the proper sight-setting and direction, that a proper rate of fire is being maintained, and that their fire is well distributed over the entire target. Changes in elevation and rate of fire may be indicated orally or by visual signals; changes in direction may be made by word of mouth, or by demonstrating the proper direction by means of tracer ammunition.

The squad leader, himself, fires only under unusual circumstances, as in defense when the enemy is finally closing, and beginning his assault. Seven rifles effectively used under the direction of the corporal, are more valuable than the firing of eight uncontrolled rifles. The corporal usually keeps his magazine loaded with tracer ammunition during the attack.

When the squad as a unit advances by rushes, the corporal leads his men by 5 paces. Each rush, made at high speed, covers about 30 yards. A bound of less than 20 yards is of little value; while a rush of more than 40 yards requires so much effort from the average trooper, that it takes him several moments to recover.

When the rush is made by half-squads, the corporal leads the first half-squad; the second in command leads the remainder.

When the rush is made by twos or individuals, the corporal designates by name the first set of twos, or the first three individuals to go. He personally starts them off at about 40 yards distances. The corporal himself makes the rush with the second set of twos, or as the fourth individual. The second in command supervises the movement of the remainder of the squad, and himself moves forward with the last element. (See Plate 23, Musketry).

When a unit advances by fractions, the movement of the leading element to a new position is covered by an increased rate of fire from the remainder on the old firing line.

Second-in-Command. The second in command takes his place in the firing line and performs the same duties as the other members of the squad. He assists the corporal when the squad advances by small fractions, and brings up the rear of each such movement.

Scout. The ground scout moves forward until he has either located the enemy, or the latter has fired upon him. In the first instance he signals back *Enemy in sight,* and remains concealed in observation, until he receives further instructions from the squad leader. When the enemy opens fire upon the scout,

PLATE 13. Dismounted Rifle Squad in the Assault.

the latter gains a suitable firing position and fires on the enemy with tracer bullets. The squad, in such a case, will advance and take position alongside the scout. When the forward movement is resumed, the scout is the first to go forward.

It sometimes becomes necessary for the squad to open fire while the scout is still some distance ahead. The scout must then seek safety for himself by gaining low places, or by working to a position on the flank.

Alternate Scout. The alternate ground scout functions as a rifleman until ordered to function as a scout.

The Rifle Platoon. (War Strength).

Organization. The cavalry rifle platoon consists of a Platoon Headquarters with the following personnel: Lieutenant (leader), Platoon Sergeant, Sergeant File Closer, 2 privates (messengers) and three rifle squads, a total of 28 men.

Led Horses. When any cavalry unit dismounts to fight on foot it must make adequate provisions for its horses. This is accomplished in one of two ways:

(1) By leaving the horses *mobile;* that is by leaving one man in each set of fours to act as horse-holder for the remaining three animals. While this disposition of the animals permits them to be maneuvered readily by the horse-holders, it also acts to reduce the effective rifle strength of the platoon by one-fourth.

(2) By leaving them *immobile.* Horses may be linked in pairs, head to tail; or they may be linked by fours or squads in small circles. When horses are left immobile, the full rifle strength of the platoon is available for action, but the led animals remain fixed to the location in which they were left. They cannot be led or otherwise maneuvered. In either case presented under (1) or (2) above, the sergeant file-closer remains in charge of the animals.

In view of the fact that led horses in large groups present an especially vulnerable target for hostile air-craft, special security measures must be taken by the commander whose responsibility it is.

Cover is always sought, and the animals placed therein. Where no cover exists, safety is attained in the wide and irregular dispersion of small groups. When animals are left immobile in this case, they are secured in couples at widely and irregularly dispersed intervals. Led animals (horse mobile) under the conditions of no available cover, are also dispersed; the horse of each set of fours being kept at least 75 yards from a neighboring set of fours.

The sergeant file-closer must keep close watch for any threat from the air, and must not hesitate to change the position of led animals should he feel their location has been discovered by the enemy. He should, of course, inform the platoon leader immediately of such change.

Machine Rifles. Whenever a rifle platoon dismounts to engage the enemy, it is habitual for the machine rifle squad which normally operates with it to join. The first machine-rifle squad normally operates with the first rifle platoon; the second machine-rifle squad with the second rifle platoon, and so on.

When the machine-rifle squad reports to the rifle platoon leader for duty, he usually assigns a machine rifle with its crew (gunner and assistant gunner,) to each of his flank squads. The gunner and assistant gunner of crew No. 1 join the left flank squad; the gunner and assistant gunner of crew No. 2 join the squad on the right flank of the platoon.

When the rifle squad advances in column of troopers the attached gun crew is at the tail of the column immediately in front of the second in command. (Plate 14).

Duties of the Members of the Dismounted Rifle Platoon.

The duties and positions of the various members of the dismounted rifle platoon during the *approach march* (Plate 15) and the *fire fight* (Plate 16) in an action are briefly summarized as follows:

During the Approach March.

Platoon Leader. The platoon leader in the approach march has no prescribed position which he must maintain. He always leads his unit, keeping, as a rule, about midway between the scouts and the head of the squads in column of troopers. He may move up to the line of scouts, or to the right or left flank,

assuring himself, however, that he is always suitably located to conduct the march or to engage his unit in action.

The platoon leader is responsible that the proper direction is followed. He gives the necessary instructions to the scouts (one from each squad), and to the platoon sergeant as to the direction to be taken. He causes the platoon sergeant to keep a constant check on the direction taken by the center scout with a view to maintaining a proper course.

The platoon leader keeps in contact with the scouts and with the platoon

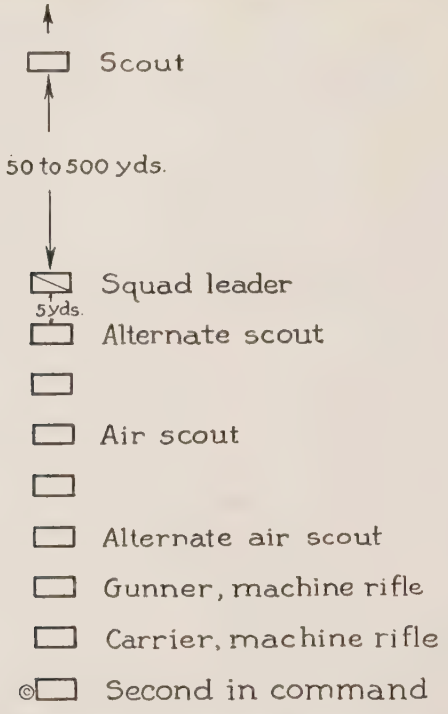

PLATE 14. Dismounted Rifle Squad, with Machine Rifle Attached, in Column of Troopers.

sergeant. When the scouts are reconnoitering from a crest, the platoon leader closes up on them and takes their place on the crest, when they have moved forward. He controls the movement of the platoon by signals to the scouts, and to the platoon sergeant.

Platoon Sergeant. The platoon sergeant follows the platoon leader at about 50 to 200 yards. He leads the platoon, which follows him at a distance of from 50 to 100 yards. He sees that the squads take cover. He keeps in contact with the platoon leader, and watches for his signals. He enforces discipline in the platoon. He replaces the leader if the latter becomes a casualty, and instructs the senior corporal to act as platoon sergeant.

File Closer Sergeant. The file closer sergeant is left in charge of the led horses, hence is usually not present with the dismounted platoon.

Platoon Messengers. The platoon messengers accompany the platoon leader and carry his messages. They observe towards the flanks and keep the leader informed as to the movements of adjacent units. If the platoon is acting alone they observe toward the led horses. They also watch for hostile air-craft.

Squad Leaders. The squad leaders keep about 5 yards in front of their squads. They select covered routes for their squads, and control their movements. They enforce discipline; they maintain contact with the platoon sergeant.

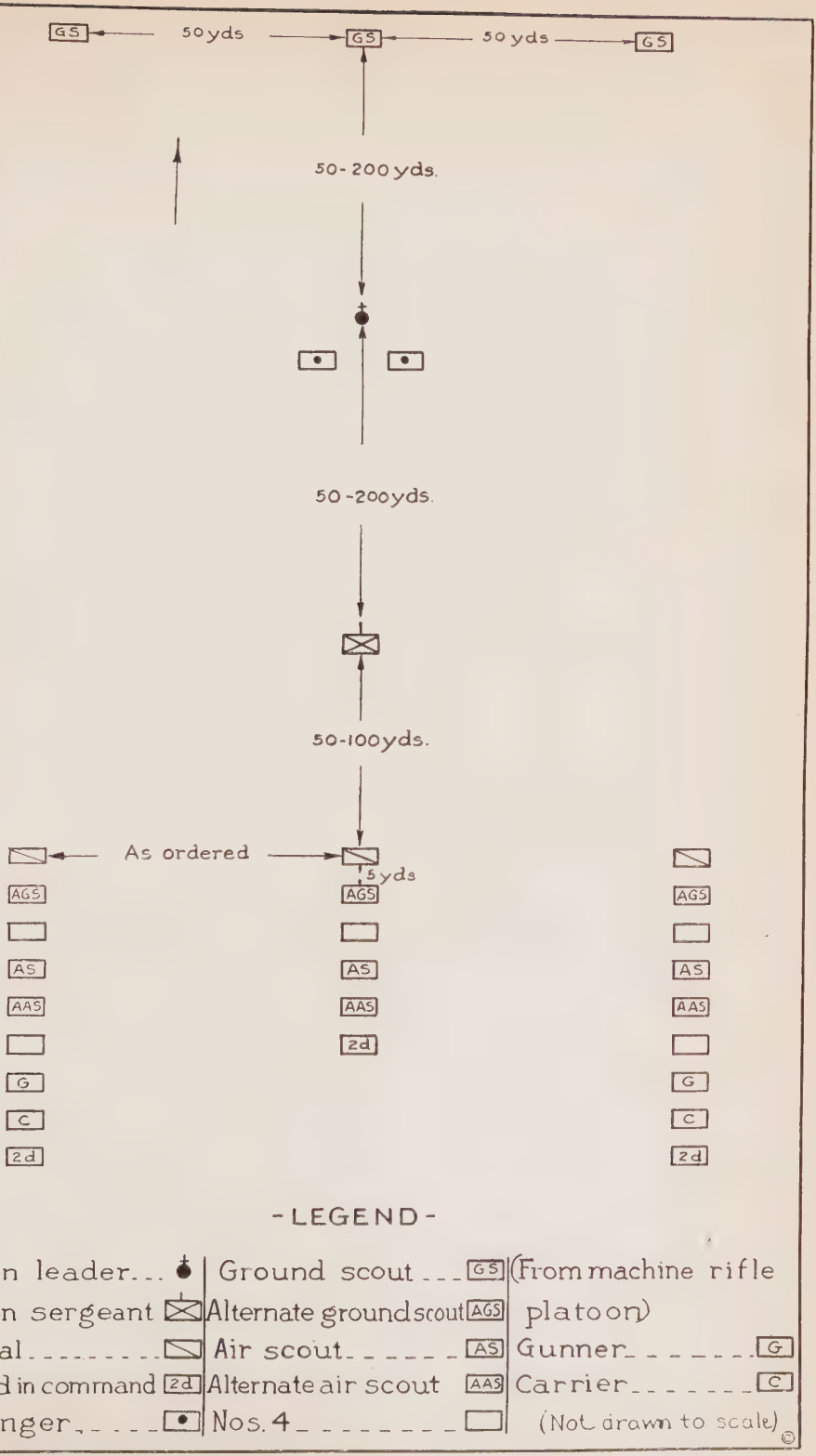

PLATE 15. Dismounted Rifle Platoon in the Approach March (Platoon in line of Squads in Column of Troopers.)

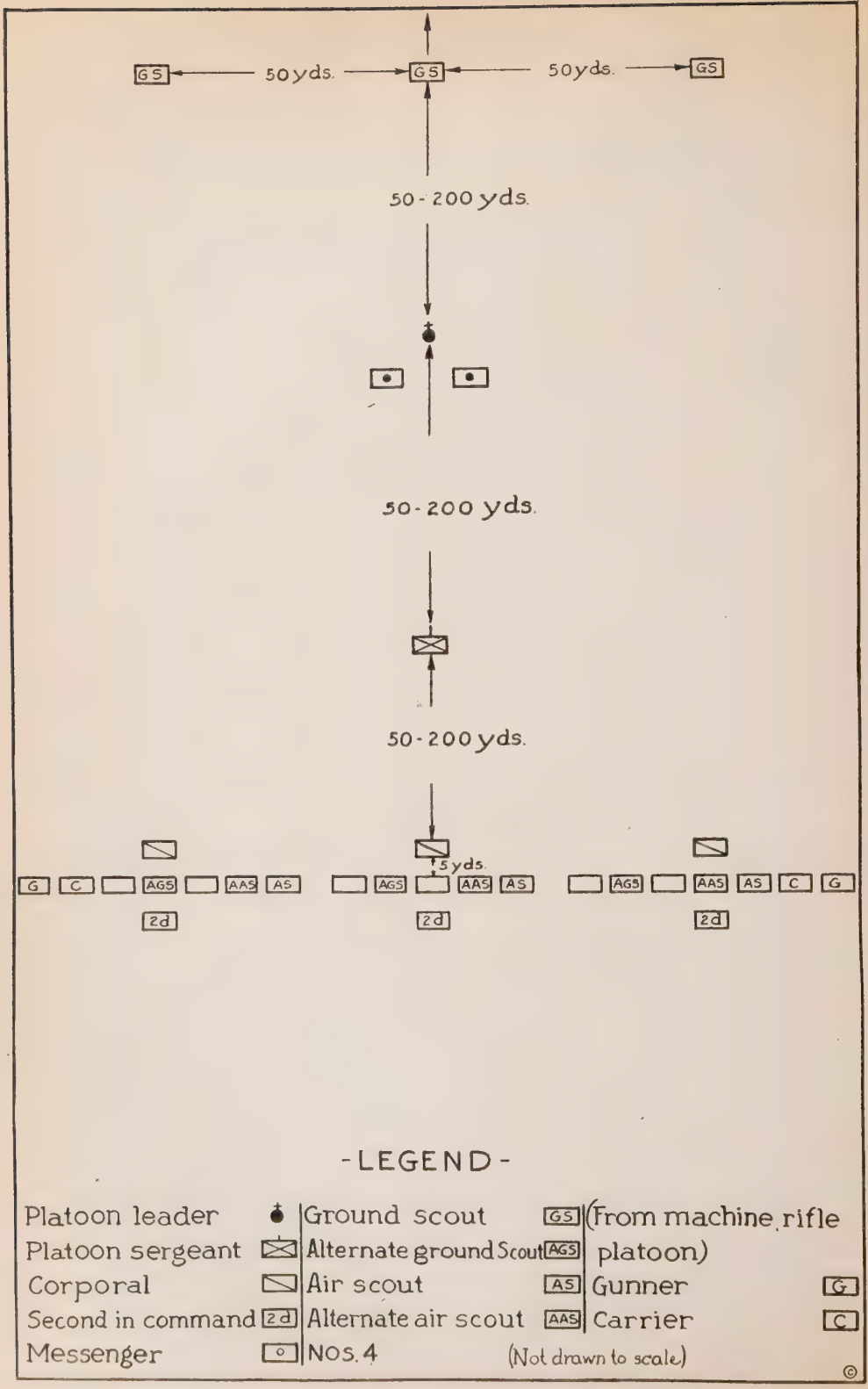

PLATE 16. **Dismounted Rifle Platoon in Advance to First Firing Position (In Line of Troopers.)**

Whenever distances and intervals are given in connection with combat formations, it must be remembered that they are not rigid, but must be varied with intelligence to fit the situation. In open country distances and intervals must be extended so that elements of the platoon are less vulnerable to the enemy fire. In close country, through fog, smoke, woods, or at night, distances and intervals are decreased so as to maintain contact.

During the Fire Fight.

Platoon Leader. As soon as the enemy has been discovered by a scout, the platoon leader hastens to the position of the scout who gave the signal. The leader obtains from the scout all possible information concerning the location and limits of the hostile position. He then reconnoiters the ground to the front and flanks to see whether further advance is possible before opening fire. In event that this be not feasible, he selects a suitable firing position and again studies the ground as to the best method to attack. He estimates the range, and causes the scouts to do likewise; a mean of these estimates is the initial sight setting for the platoon.

Upon completing his reconnaissance, the platoon leader withdraws behind cover and signals for the platoon sergeant and the squad leaders to assemble.

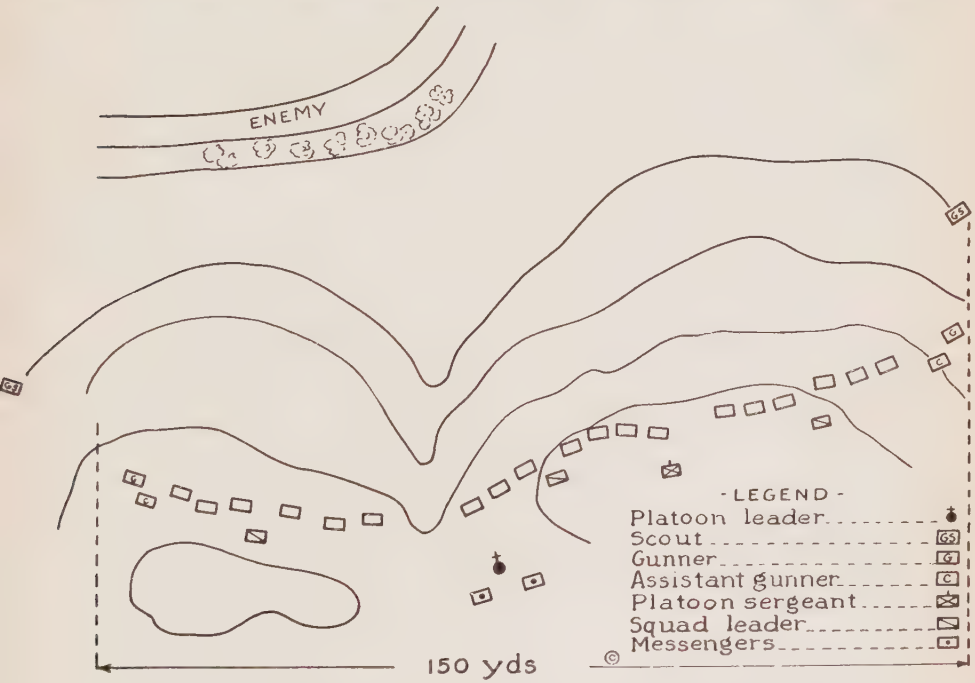

Plate 17. Dismounted Rifle Platoon Deployed in Firing Position (Scouts Disposed for Flank Protection.)

He causes them to move cautiously to such a position that they can see the target, which he points out to them. He then directs them to withdraw, and issues his instructions to them under cover. His orders include information of the enemy; the range; the position of the scouts; the approximate locations of adjacent platoons; and his plan of action. The latter must be explicit and clear. He tells his corporals just where each is to lead his squad; the route thereto; the formation (if practicable); and what each squad is to do upon reaching the new position. He explains what the target for each squad is to be; when to open fire; and the manner in which the approach is to be made.

In moving forward from one firing position to another the platoon leader moves whenever and wherever he deems best. As a rule he reaches the new firing line soon after the first skirmishers have reached it. In movements by individuals (by infiltration) the platoon leader usually follows the machine riflemen to the new line. As the fire fight progresses the forward movement of the platoon becomes a matter of progression by very small units or finally by individuals. Squad leaders are therefore thrown largely upon their own initiative. In this stage of the action, the platoon leader can best occupy himself with careful reconnaissance to the front and flanks, and keeping track of the movements of his men. Necessary instructions are sent by him to the several squad leaders by means of his two messengers.

During the advance by fire and movement the platoon leader must keep three factors in mind; the ground, the hostile fire, and the volume and effectiveness of his own or supporting fire. He seeks to control the action of his several squads, so that full advantage can be taken of these three factors.

Flank protection, also, is a concern of the platoon leader. Through his messengers, who keep a sharp lookout to the flanks, he is informed of the situation to his right and left. When necessary to do so, he provides for the protection of an exposed flank by sending out a small security detachment. The platoon leader, throughout the fire fight, takes position where he can control his platoon, and at the same time observe the movements of the enemy, and the effectiveness of the fire.

Platoon Sergeant. The platoon sergeant takes such position in rear of the line where he can best assist the leader in controlling the platoon. From his position he must be able to see, and communicate with the squad leaders and, if practicable, the platoon leader.

Squad Leaders. The squad leaders are in rear of their squads, and close to them. They control all the men in their squads. They must be able to see the platoon sergeant, or the platoon leader, as well as the target and the ground in front of the squad. Avoiding needless exposure, they move from man to man when necessary to give individual instructions.

Scouts. The scouts have been absorbed by the skirmish line and are firing.

Messengers. The messengers remain with the platoon leader. They watch the flanks and keep the leader informed of the situation to the right and left of the platoon. They carry messages for the leader.

Machine Rifles. Machine rifles, attached to flank squads, are normally posted on the extreme flank. Such positions insure added protection to the flanks, permit the delivery of enfilade or oblique fire upon the enemy, and facilitate their forward movement without masking the fire of the remainder of the platoon. In the advance by infiltration the machine rifle gunner, followed by his assistant, the carrier, are usually the first individuals, after the scouts, to move forward.

CHAPTER VII.

MAP EXERCISE, DISMOUNTED ATTACK.

General Situation. For the purpose of our exercise let us return to the problem which we have been following through the various phases of patrolling and party of the advance guard for the right column as it moves on J (Plate 18) via the road K-L-M-N.

The point consists of one squad (8 men). It is moving down the road about 300 yards ahead of the advance party. One platoon (less the squad in the point), with a machine rifle squad attached, constitutes the advance party. The latter, under command of Lieut. AP precedes the support by about 500 yards.

Situation 1. (Point). The point of the advance guard is approaching the patch of woods about 2 miles northwest of L (Plate 18) when it receives heavy fire estimated as about 15 or 20 rifles, from the direction of the trees to the north. The fire is so heavy the point cannot advance further down the road without serious casualties.

Requirement. Decision of point commander.

Solution. The point commander decides to dismount his squad under cover and open fire upon the enemy.

Discussion. To advance mounted against an enemy of unknown size who has taken up a firing position would be foolhardy. When the point is stopped by fire, it occupies a position, dismounted, from which it can return the fire; protect the axis of movement; and cover the subsequent action of the advance party.

Situation 2. Unchanged.

Requirement. Disposition of the horses.

Solution. The corporal dismounted his squad behind the low crest under cover of the trees west of the road. The led animals were left here, mobile.

Discussion. The corporal rapidly considered whether he should leave the horses mobile or immobile. He probably approached the problem as follows:

(a) Reasons for leaving horses immobile:

(1) Point will not be called upon for mounted action until enemy quits present position. Hence no need to leave personnel to bring the animals up rapidly.

(2) Led horses are suitably located—being protected by the ridge from direct fire of the enemy, and sheltered by the trees from aerial observation.

(3) An extra, and much needed, man is thus saved for firing. This trooper otherwise would be back with the led horses.

(b) Reasons for leaving horses mobile:

(1) A sudden threat might develop from the west flank which would require rapid maneuvering of the led horses to avoid.

(2) Subsequent developments may cause the point to attack dismounted down the road. At the conclusion of this action, the point might find itself a considerable distance from its immobilized mounts. Much time and effort would be saved by leaving the latter mobile. In this case the horses could be brought rapidly to their riders, and the advance continued (or pursuit taken up) without delay.

The corporal probably estimated that the last reasons considered, outweighed the first.

Situation 3. Unchanged.

Requirement. The location and disposition of the point on the firing line.

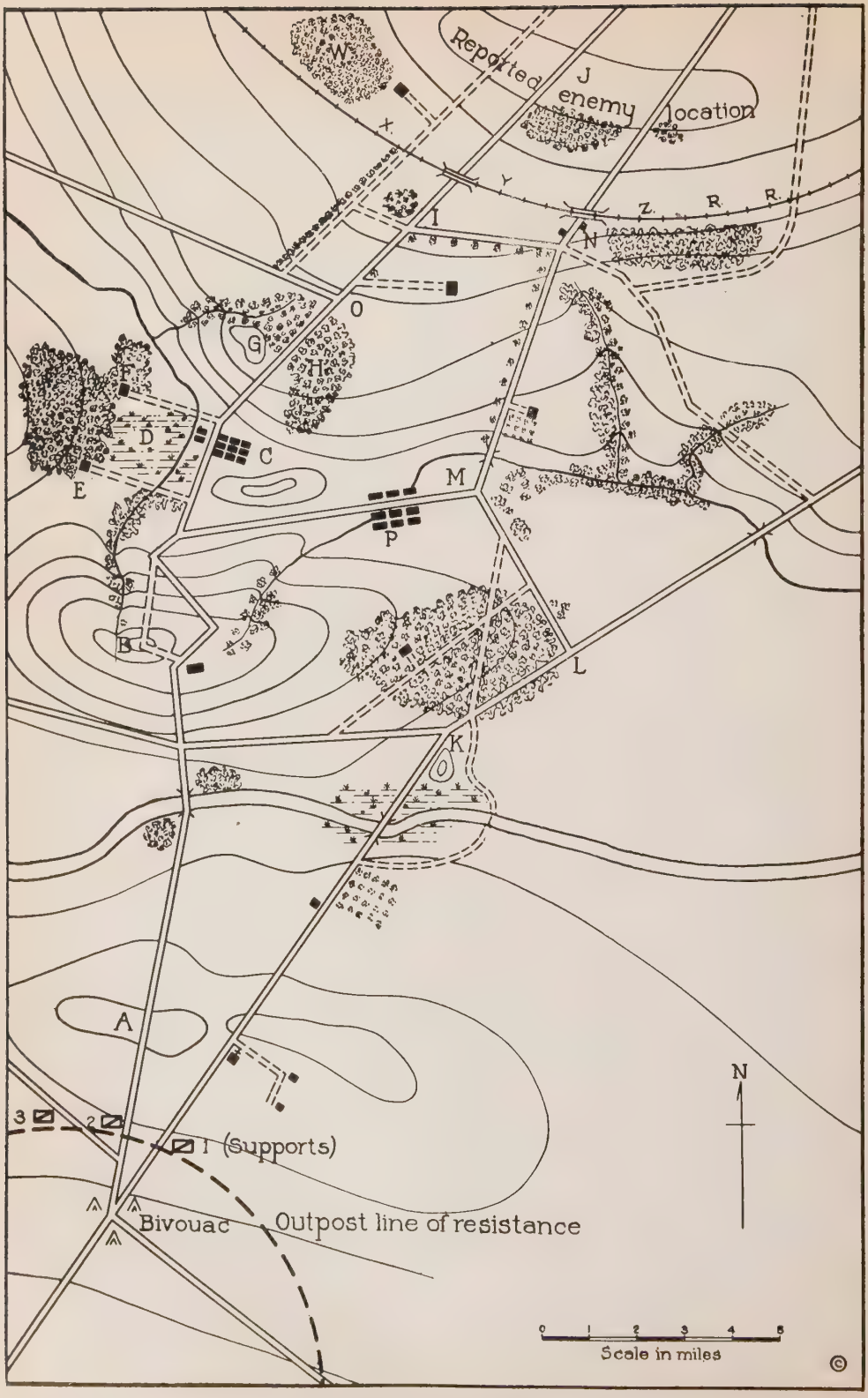

PLATE 18. Map Exercise, Dismounted Attack.

Solution. The corporal locates his men as skirmishers, to the right of the road. The interval between skirmishers is about 7 yards. The corporal takes his own position close to the firing line near the road.

Discussion. The right of the road was selected for the initial position of the point, rather than the left, because it offered the best field of fire upon the enemy position. Trees and the dense underbrush bordering the left of the road not only restrict the field of fire but also make it difficult to control any fire unit whose position is west of the highway. The corporal takes his position close to the firing-line rather than well behind it, because in the latter position he could not observe the effectiveness of the fire of his squad. He remains near the road, because he knows the advance party commander will soon arrive by the road and he wishes to be close enough to give him the situation as promptly as possible.

Situation 4. Advance Party. The advance party commander arrives, dismounts, and turning over his horse to one of his messengers, moves with his other messenger to the position of the point commander. The latter explains the situation, points out the enemy location, and informs him of his actions. They both then carefully reconnoiter with their glasses. There is apparently no fire coming from west of the road, although that from the east has increased in intensity. The characteristic patter of automatic weapons is heard coming from the trees to the front. Lieutenant AP estimates that at least an enemy platoon with machine rifles or automatic rifles is opposed to him. He has seen nothing to indicate whether the enemy is infantry or cavalry.

Requirement. Decision of Lieutenant AP.

Solution. Lieutenant AP decides to put the advance party in action dismounted on the line now held by the point.

Discussion. Lieutenant AP made this decision as a result of a rapid estimate of the situation which he made upon his arrival at the location of the point. The hostile opposition in his front he considers too strong to be brushed aside by his platoon alone. The enemy has at least a platoon with its automatic weapons in action along the edge of the woods to the front; he may possibly be even stronger. The open terrain leading to the hostile position while it appears to be good galloping ground for a mounted unit, has the dangerous disadvantage of affording to the enemy a most excellent field of fire. Serious loss would certainly result from a frontal attack across such open ground, against an enemy in position. In some cases a mounted charge across a similar open space would result in success; but such a hazardous undertaking is uncalled for in this situation. The advance guard has other and stronger elements besides the point and advance party; elements which can leave the axis farther to maneuver than they can. Hence Lieutenant AP is justified in putting his platoon in dismounted action, to furnish a pivot for the maneuver of other elements of the advance guard. He therefore dismounts one squad and the machine-rifle squad, leaving the led horses mobile under cover with the horses of the point, and sends mounted patrols of a half-squad to each flank about 400 yards. Lieutenant AP assumes command of the point.

Situation 5. No change.

Requirement. Locations of the two rifle squads and the machine-rifle squad on the line.

Solution and *Discussion.* A deviation from the normal locations of some of the members of the platoon was necessary in this situation. Each case will be considered separately below:

Machine rifles. Lieutenant AP knows that part or all of the remaining units of the advance guard will have to be employed to force the enemy from his present position. He also knows that the advance party will in all likelihood be ordered to advance dismounted toward the enemy position. The only pos-

sibility of making such an advance is by keeping down the enemy fire. The best chance of accomplishing this is by working forward his automatic weapons through the woods bordering the western edge of the highway, and by pouring upon the enemy an intense flanking fire with these guns. He considers the advisability of retaining a machine rifle on his own right flank, its normal position. This flank, however, possesses the decided advantages of a good field of fire and of excellent observation. No enemy force could approach this flank unobserved or so suddenly that adequate and timely steps could not be taken to counter such a threat. Lieutenant AP sees no vital reason for keeping a machine rifle on his right flank. He therefore posts both guns across the road to the left ready to commence an advance should one be ordered by the support commander.

Squad deployment. One squad is deployed to the right of the already deployed point. The remaining squad is split. One half-squad with the second in command is ordered to report to the corporal of the machine rifle squad to act as flank protection for the guns. The other half-squad under the corporal is ordered to the extreme right flank for use as a combat patrol should necessity arise for the employment of such a security group.

Squad leaders. Squad leaders are all on the firing line, and not behind it. This appears to be advisable because it is necessary for them to observe the fire effect of their men. This they cannot do if they remain behind the slight fold in the ground upon which the platoon is deployed for firing. Each corporal, however, is able to see the platoon sergeant who remains well behind the line to relay by signal the platoon leader's orders. In case it is necessary to give instructions to individual members of the squad, each of the corporals can easily crawl backward from the line, and move wherever necessary under cover.

Platoon leader. The platoon leader, having no arbitrarily fixed position, has taken post where he can see both the enemy and the platoon sergeant who remains behind the line.

The messengers. The messengers remain close to the platoon leader, ready to carry his messages.

Scouts and alternate scouts. The scouts and alternate scouts are on the line firing.

Narrative. Upon the arrival of the support commander, a plan of action, later approved by the advance guard commander who hurried to the scene, was decided upon. This plan, in brief, is as follows: A combined attack to be made by the entire support, enveloping the enemy right and rear. The advance party to support the envelopment initially by fire from its present position, and by an attack astride the road. The enveloping force to move under cover of the woods west of the road to its attack position (line of departure). The enveloping force to signal the time of attack by firing a Very pistol. The reserve of the advance guard to remain in readiness behind the ridge under cover of the trees to the left of the road.

As soon as orders to carry out this plan are issued, the attack would develop rapidly. The pivot (advance party) would open an intense fire on the enemy position. The machine rifles would advance alternately by rapid bounds through the trees, one gun advancing while the other fired obliquely at the enemy. The three riflemen assigned as flank protection to the guns, would accompany the latter keeping well to the left flank. The remainder of the firing line would advance as soon as it became possible to do so. In the meantime the maneuvering force would be moving rapidly to its attack position in rear of the enemy right. When ready to jump off it would fire the prescribed Very pistol signal. The dismounted elements, upon seeing this signal, would increase their fire until the appearance of the maneuvering attack compels them to stop. They then would move rapidly forward to close with the enemy, and complete his defeat.

CHAPTER VIII.

DEFENSIVE COMBAT.

Introduction. Cavalry on the defensive seeks to hold extensive fronts with relatively weak forces. By employing its mobility to effect surprise, in defense as well as offense, cavalry avoids rigid defense as far as possible, and keeps the enemy in ignorance of the character of the resistance with which he is confronted. A comparatively large proportion of the available force is held in reserve for counter-offensive measures. The decisive element of defensive action is the counterattack.

Cavalry is most useful in actions which permit the greatest freedom of maneuver and the full exercise of its mobility. It therefore employs active defense or delaying actions rather than the rigid or sustained defense, so that it may assume the offensive promptly whenever the opportunity arises. Defense should be employed only when offensive action is not justified. When it is necessary to resort to defensive action, simple and direct plans and methods are most practicable. The object is to gain time until more favorable conditions permit a resumption of the offensive, or to economize forces so as to concentrate for decisive action elsewhere. The minimum of troops should be employed on the defense, so as to release the maximum number for offensive cavalry action.

The occupation of a position by cavalry is ordinarily on a relatively greater front and in less depth than with a corresponding infantry force. Units are disposed with comparatively wide and varying intervals, so arranged as to take advantage of the terrain and to provide mutual support. Organization of the ground is usually limited to the construction of obstacles, rifle pits or sections of fire trenches, and demolitions. These works are less elaborate normally than those of infantry.

Led horses are held as near dismounted troops as the situation and ground permit. When a stubborn protected defense is to be made, led horses are sent well to the rear. In any event, a cavalry commander must provide carefully for cover, concealment, and protection for led horses.

Deployed Defense. The form of defense most frequently employed by cavalry is deployed defense. This differs from the more deliberately organized forms (*position defense* and *zone defense*), in that dispositions must be made hastily to block an aggressive move by the enemy. There is seldom time to construct defensive works. In deployed defense against infantry, cavalry units deploy on a comparatively wide front in mutually supporting combat posts. Local reserves support the combat posts, and a general mobile reserve is held under cover in the rear. Against cavalry, or a force that contains a large proportion of cavalry, the strength of the general mobile reserve is proportionately increased.

Active and Passive Methods. Defensive combat may be active or passive. The active defense is a defensive-offensive action. It is employed in order to gain an advantage over the enemy by temporarily developing and containing him, and then assuming the offensive under more favorable conditions than existed at the start of the action. The defensive phase is temporary; the offensive element is of primary importance. Extensive organization of the ground is not contemplated. That part of the force deployed for defense acts to compel the enemy to deploy and attack. The general reserve is employed in the attack, which is characterized by rapid maneuver followed by determined attack, either mounted

or dismounted, depending on the special situation. Auxiliary and supporting weapons should support one or both attacks as the situation indicates.

Passive defense is adopted in order to hold a specified area, position, or front for a period of time as indicated in the mission. The extent of the organization of the ground is dependent on the time available. Combat is ordinarily dismounted. Mounted action by reserves may be employed in such offensive action as may become necessary in capturing or ejecting hostile forces which have penetrated the position, or in repulsing envelopments.

Positions. A position that can be readily turned has no defensive value. To select a suitable position, the commander should make a personal reconnaissance of the ground, in as much detail as time permits. His selection should be governed by the following main considerations:

Observation and a field of fire are essential.

The front and depth of a position should be appropriate to the strength of the defending force.

Flanks should be protected by natural obstacles or covered by observation points within the position.

Communications (roads) for supply and evacuation, and avenues facilitating movement of combat elements are desirable.

Natural cover and concealment add to the strength of a position.

The position must conform to the operative objective sought.

Natural obstacles to the enemy's advance and a long range field of fire are especially desirable in delaying actions.

The terrain should favor maneuver of combat elements in the case of an active defense.

The time available and the mission are the main factors governing the selection of a position where there is a choice between a naturally strong position and one which can be made so by ground organization.

Organization for Defense.

Organization for the defense of a position may include the detail of security detachments, holding forces, and reserves; the division of the position into sectors; and organization in depth.

Security detachments include outposts, flank detachments, and covering forces. A portion of a force on the defensive is always disposed as an outpost. It gives warning of any hostile advance and delays the occupation by the enemy of terrain in the foreground of the battle position. It may repulse minor attacks and raids and cause early deployment or disorganization of hostile attacks. Flank detachments are employed as the situation and the selected defensive position indicate. These detachments organize isolated tactical localities which may serve in the extension of the defensive position to a flank or as pivots of maneuver in counter offensive actions. A covering force may be employed in advance of the outpost. Its purpose is to maintain contact with the enemy and in general delay a hostile advance by causing early deployments. Covering forces may consist of all arms, but strength is kept at a minimum. When withdrawn, covering forces usually form part of the reserve.

Combat troops consist of troops which garrison the firing line and support line. They occupy strong points, located on features of the terrain affording a field of fire to the front and flanks, separated by intervals permitting supporting rifle fire of adjacent strong points.

In addition to having local reserves for subordinate units, a force larger than a squadron, when acting alone, may have a reserve or a general reserve, under orders of the commander of the entire force, who uses it to assist the action as a whole.

A defensive position is generally divided into sectors, and a tactical unit designated for the defense of each. Lateral sector boundaries extend to the front to the maximum range of weapons of the unit designated for its defense,

and to the rear to include unit reserves. The squadron is the primary tactical unit of command employed by cavalry in defense.

The battle position may not only cover the front but may extend materially in depth. It may consist of four lines of tactical localities, the firing line, the support line, the squadron reserve line, and the regimental reserve line. In large commands, brigade and division reserves are held further in rear and located generally as the special situation and terrain indicates.

(1) The firing line is the main line of resistance of a battle position, and upon it is organized the greater portion of fire. A firing line is occupied by front line platoons disposed at intervals, called combat posts.

(2) The support line is occupied by supporting platoons of combat troops, generally located on the forward slope, and ordinarly not less than 100 nor more than 300 yards in rear of the firing line. The mission of supports is to assist in maintaining the integrity of the firing line.

(3) The squadron reserve is located 400 to 900 yards in rear of the firing line. The mission of the squadron reserves is to assist in maintaining the integrity of the firing line when the strength of supports proves inadequate.

(4) The regimental reserve line is located from 800 to 1800 yards in rear of the firing line. The principle function of a regimental reserve is to expel by counterattack penetrations of any portion of the battle position which the squadron reserves have failed to expel, or to delay attacks which may necessitate employment of brigade or division reserves in counterattack.

(5) The primary missions of brigade and division reserves are to reestablish, through counterattack, disrupted parts of the battle position. They are generally located sufficiently in rear of regimental reserves to avoid losses in the early conduct of defense, but close enough to the front to permit their employment before a serious disruption of the battle position can occur.

Conduct of the Defense.

Deployment. Cavalry must be deployed for defense in frontage and depth. The front to be assigned a unit for defense varies with the importance of the sector, its natural defensive strength, the amount of organization possible before an attack against it can be made, the probable nature of attacks expected, and the type of defensive action to be employed. Disposition in depth by cavalry units depends upon the location of terrain features suitable for the firing line, support line, squadron reserve line and regimental reserve line, upon the composition of forces in opposition, upon the flank protection required, the presence and activity of hostile artillery, and upon the class and form of defensive action to be employed.

Fire and Movement. The conduct of the defense is based upon the application of the principle of fire and movement. Fire is the principal means of defeating an attack. Maneuver by reserves is necessary to maintain the dispositions for the delivery of fire.

Concentration of Effort. A fundamental principle of defensive combat is concentration of effort of the entire force in defense of the line on which it organizes for the development of its maximum fire power. This line is the main line of resistance of the battle position.

Phases of the Defense. Phases of the defense may be said to consist of *developing the attack, early fire action, defensive readjustments, the fire fight,* and *the assault.*

While the hostile attack is developing, troops in front of the main line of resistance delay and harass the enemy, attempt to deceive him as to the defensive disposition, lead him in false directions, and cause him to deploy prematurely and on incorrect lines. This phase is termed *developing the attack.*

Artillery fire at long range on important points, artillery and machine gun fire on assembly areas or routes of approach, augmented by rifle fire when

enemy forces come within rifle range, delay the advance, cause loss of direction and control, and may induce the enemy to halt prematurely for the fire fight, as well as inflict losses. The phase term *early fire action* effects a delay and permits the defense to perfect its dispositions and reenforce threatened points.

When the front and direction of attack have been determined, the defense takes steps to meet the attack. Security detachments between the attacking forces and the battle position withdraw and join the reserves. Threatened points are reenforced or the forces for counterattack purposes are increased. This is termed the *defensive readjustment phase.*

The defense, to be successful, must gain and maintain fire superiority. Small units concentrate on elements advancing in their sectors. The fire is frontal or slightly oblique at first, but as the attack advances the fire of machine guns and machine rifles, especially, should become more oblique. When the enemy approaches within assaulting distance all fire is concentrated on the attacking elements. The flanking fire of machine guns is a vital element at this stage of the attack. This phase is termed the *fire fight.*

During the last phase, termed *the assault,* adjacent units support each other with flanking fire. The assault is met with rapid fire and pistol fire. Should the enemy succeed in a penetration, a hold should be maintained on each side of the gap, all attempts to widen it should be seriously resisted and counterattacks launched at once.

Counterattacks. Units of the battle position, when unable to prevent a hostile penetration of their sector by fire from occupied areas, expel such forces by counterattacks. Counterattacks are most effective when launched against the flanks of a penetration. However, promptness of execution is more important than direction of attack or artillery preparation. An immediate attack by cavalry against a disorganized enemy generally has more chance of success than a well supported, but delayed, counterattack against an enemy who has been allowed time to reorganize. Large counterattacks require detailed preparations, and are generally more successful when employed against the flanks of the hostile penetration, at a time when the greater part of the hostile reserves have been committed to the attack. Counterattacks for a decision are made in accordance with the principles of the attack; when made to reestablish disrupted portions of the defensive position they are assigned limited objectives.

Defense by Small Detachments.

Small detachments of cavalry are often assigned the duty of protecting isolated points such as villages, ranch buildings, watering places, and similar places. In such situations the detachment commander is practically "on his own," and he should have well-defined ideas of how to perform the task that confronts him.

Information. The absence of daily contact with the enemy and the lack of definite information of the enemy increase the danger of surprise. Non-military or routine duties, that are required of the command, may cause it to be scattered, or place it at a disadvantage in uniting to meet a sudden attack, unless precautions peculiar to such situations are taken. The military aspect of defense is complicated further by the presence of noncombatants and the extent of property to be guarded. In such a situation, an intelligence officer is at once detailed, and, where practicable, furnished with the necessary personnel and funds for carrying out his work. This officer must cooperate with the civil authorities of the locality and utilize every opportunity for obtaining information. He must make the acquaintance of, and keep in close touch with, such responsible civilians who, by nature of their pursuits or acquaintances, are most apt to furnish reliable information. Close touch is kept with the enemy situation. Reports or rumors that cannot be verified are assumed to be true and the command kept on the alert while investigation is made.

Plan of Defense. A plan of defense is prepared, and the command trained in carrying it out. This plan includes the security measures to be maintained, the kind of defenses to be prepared, designation of troops to occupy each prepared position, and routes to be taken to such positions if not occupied at all times, designation of reserve, designation of assembly points, communications to be installed and employed, disposal of horses, disposal of noncombatants, clearing of streets, and such other considerations as the situation requires.

Dispositions. The general scheme of deployment conforms to the principles of an active defense. It is characterized by little depth, extension of front, volume of fire, and an aggressive attitude.

Intrenchments, suited to the size of the command and the nature of the locality to be guarded, are prepared. In the case of a village, simple field works, suitable for occupation, each by a group of appropriate size and located in the salients to afford mutual support, is usually sufficient. Upon the completion of these works, they should be occupied temporarily by the troops assigned to them and firing data prepared, so that night firing can be employed without danger of firing into friendly troops. The occupation of these works is automatic when the general alarm is given. Ground intervening between intrenchments is covered by obstacles or by enfilade fire.

A reserve is provided for, a place of assembly designated for it, in case of an alarm. The reserve must be familiar with the location of the intrenchments, the routes thereto, and the method of covering ground intervening between intrenchments.

Patrolling. Day and night patrolling at a distance is the surest means of guarding against surprise attacks. Distant patrols are provided with means of signalling an enemy advance. Telephones are used where practicable, but sole reliance is not placed in them.

Communication. Frequently considerable dispersion of a command is necessary, as in the case of a small organization guarding a village which is subject to an attack from any direction. All available means of communication are employed. Additional telephone wire and instruments are promptly requisitioned. Arrangements are made with the local telephone company for use of all civilian telephones. A list of civilians owning automobiles and motorcycles is made. Full use is made of pyrotechnics.

Civil Population. The plan of defense includes the method of dealing with the civilian population in case of attack. This is regulated by cooperation with the civilian authorities of the locality. Such arrangements include: gathering women and children into public buildings more suitable for protection than their own homes; arming the male population, and the plan for their use in case of attack; clearing of streets; cooperation of local fire and police departments; and occupation by troops of any buildings having advantages for defense.

CARE OF ANIMALS

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CARE OF ANIMALS

Chapter I.
IN CAMP AND GARRISON.

Feeds, Feeding and Watering.

The Proportions of Various Food Components in a Ration. The components of any ration depend upon the class and condition of the animals and the work required of them, the variety of available foods, the kind of shelter afforded, the climate, the season, etc. The food must be selected in such proportions as to form a balanced ration and fed in such quantities at such hours as to enable the animal to obtain the greatest possible amount of nutrition from them. The forage ration, with its permissible substitutes, as given hereafter, furnishes a ration which is sufficiently balanced for service use.

Oats. Oats are the safest of all grains for animals. Accordingly they are standard for issue in the Army, and all other grains are regarded as substitutes. Corn, barley and rice are considered fairly good substitutes for oats.

Oats may be safely fed in quantities up to 16 pounds per day, provided the animal is performing heavy work. Horses and mules, when rested for a length of time, should be given not more than 6 pounds daily.

Bran. Bran is an excellent food for animals. As an adjunct of a ration consisting largely of grain, it is most useful on account of its mild laxative effect. It helps in building bone and muscle without tending to fatten and adds to the general tone and condition of animals.

If dry bran is fed daily, mixed with grain, about 2 pounds may be given. The amount should be varied from time to time, according to the need. The object in feeding bran is to produce more complete mastication of food, to increase the bulk of the ration in the stomach and intestines, and to counteract the heating effect of the grain.

Animals are greatly benefited by the substitution once each week of a bran mash for the grain ration. Plenty of hay during the night furnishes the necessary bulk. This routine will tend to prevent constipation. Bran should be discontinued when either alfalfa or clover hay is fed or animals are on pasture.

A bran mash is made by placing 2 or 3 pounds of bran in a bucket, sprinkling a little salt over the top, and then pouring in enough hot water to soak it thoroughly, making the mixture mushy.

Salt. Salt is a bodily requirement and as such is necessary for the well-being of the animal. It should be regularly supplied in the form of rock or caked salt placed in or conveniently near the manger, so that the animal may have free and continuous access to it, or the grain feed should be dampened with salt dissolved in water. The feed box should not be used as a container for salt.

Hay. Hay can not be wholly dispensed with for any considerable time as a component of the ration unless it is replaced by a similar article, such as straw, as bulk is necessary for the proper performance of digestion and must be furnished for that purpose even though the component possesses little nutritive value. Animals will suffer more on a grain ration alone than on one of hay alone. Oat straw is best as a substitute for hay. Wheat straw is satisfactory, especially if chopped. The use of barley or rye straw is not recommended.

The following classes of hay are of practically equal feeding value: Timothy, mixtures of timothy with clover and other grasses, prairie, Johnson grass, Johnson grass mixtures, alfalfa, and alfalfa mixtures.

Clover hay, when of excellent quality and properly cured, makes good forage for draft animals. It has a very laxative effect and if fed alone continuously may make animals "washy." When clover hay is used it should, if practicable, be fed mixed half and half with timothy or prairie hay.

Alfalfa hay is very laxative in its effect upon animals that are not accustomed to it. The change to a ration containing alfalfa should be made gradually. If alfalfa is mixed with other hay much waste will result, as animals relish the alfalfa and will paw the hay around to get to it. If practicable, alfalfa should be fed at the noon feed, omitting the grain. Alfalfa is not a good feed during hot weather.

Grain hay is made from oats, wheat, and barley, cut before maturing. The grains are retained in the head. When feeding 14 pounds of this hay the regular ration of grain should be reduced by about 3 pounds.

Chaff, or "chop," is hay cut in 1-inch lengths. It is economical and insures thorough mastication of the grain with which mixed. Alfalfa, prairie, and clover mixed hays chop best. In order to lay the dust, chaff should be well dampened before feeding.

Sprinkling of hay before feeding is very beneficial to animals. It should be done about one-half hour before the hay is fed.

Grazing. Grazing is very beneficial to the animal.

In turning animals out for the first time to graze care must be taken that they do not overeat. Flatulent colic is almost sure to result if they are allowed to graze on *wet* or *frosted* alfalfa or clover. When grazing is sufficient and regular the feeding of bran should be discontinued.

In order to augment the possible scanty ration, the grazing of animals in the field should always be taken advantage of. Men must be trained to allow their animals to graze at every opportunity.

Compressed Forage Ration. The compressed forage ration is primarily for field service. This feed is made up of 87 per cent No. 2 white oats, cleaned, crushed, and dried, and 13 per cent pure cane molasses carefully processed. This mixture is pressed into cakes 12 by 6 by 1½ inches, weighing about 3 pounds. Three pounds of this feed is issued in lieu of 4 pounds of oats and is to serve as one grain feed. It must be thoroughly understood that this compressed forage does not in any way take the place of the necessary hay ration. On the contrary, when such a concentrate is fed it is most essential that sufficient roughage be supplied if the animals are to be kept in a satisfactory condition. Before feeding the compressed ration should be well broken up.

The Forage Ration. Forage rations for Army horses and mules are divided into two classes as follows:

Garrison Ration. The garrison ration will be issued at permanent posts or stations or in semipermanent camps.

Field Ration. The field ration will be used when animals are actually in the field, on march or maneuver, and where stabling facilities can not be furnished.

Division of Horses for Rationing Purposes. For rationing purposes there are three distinct divisions of horses, depending upon their weight, as follows:

Small horses, issued to foreign stations.

Light horses, 1,150 pounds in weight and less.

Heavy horses, more than 1,150 pounds in weight.

Allowances; Components. The following tabulation shows the allowances prescribed in each class of ration for each division of horses, mentioned above and for mules:

GARRISON RATION

	Small horses	Light horses	Heavy horses	Mules
	Pounds	*Pounds*	*Pounds*	*Pounds*
Grain	7	10	12½	8
Hay	14	14	15	14
Straw	5	5	5	5

FIELD RATION

	Small horses	Light horses	Heavy horses	Mules
	Pounds	*Pounds*	*Pounds*	*Pounds*
Grain	9	12	14	10
Hay	14	14	16	14

Substitutes and Equivalents. Not to exceed 3 pounds of bran may be substituted for a like quantity of grain or one-half pounds of linseed meal for 1 pound of grain.

In foreign possessions the substitution of palay, copra meal, or any native products for the grain ration and native grasses for hay is authorized where a saving can be effected.

In the issue of forage 10 pounds of hay will be considered the equivalent of 15 pounds of corn fodder or grain sorghums.

Variations. The variations permissible in the garrison ration and which can be furnished in a practical manner are as follows:

LIGHT HORSES

Variation 1:
8 pounds oats.
5 pounds alfalfa.
9 pounds hay other than alfalfa.

Variation 2:
6 pounds oats.
2 pounds corn.
5 pounds alfalfa.
9 pounds hay other than alfalfa.

HEAVY HORSES

Variation 1:
10 pounds oats.
5 pounds alfalfa.
10 pounds hay other than alfalfa.

Variation 2:
6 pounds oats.
3 pounds corn.
6 pounds alfalfa.
9 pounds hay other than alfalfa.

MULES

Variation 1:
5 pounds oats.
5 pounds alfalfa.
9 pounds hay other than alfalfa.

Variation 2:
3 pounds oats.
2 pounds corn.
6 pounds alfalfa.
8 pounds hay other than alfalfa.

Whenever alfalfa is mentioned the alfalfa hay mixtures in which alfalfa predominates will be regarded as alfalfa and used as such in the above variations.

Food Requirements. When animals begin to gnaw the woodwork and eat dirt and dung the cause may be looked for in the lack of mineral matter in the food or in the insufficiency of hay in the ration. In the field, when hay can not be obtained, grazing should be resorted to at every opportunity. The quality of grass is not relatively of great importance. It is highly necessary, however, that as "roughage" it should be sufficient in bulk to properly dis-

tend the intestines. Failing grass, the animal should be permitted to consume any form of roughage, such as straw, bark, leaves, etc., with which his appetite can be tempted.

For idle animals that amount of food is sufficient which maintains the weight of the body satisfactorily. The average maintenance ration should be about 18 pounds of forage for each 1,000 pounds of body weight. It may consist of hay only or of about 4 pounds of oats and 14 pounds of hay. Mules and horses absolutely idle in corrals will retain their weight on a daily allowance of 18 pounds of good hay.

When animals are put to work an increased amount of forage is necessary. As work becomes more severe the tendency should be to increase the oats without a corresponding increase of hay. During very severe work a further increase of oats is appropriate.

Feeding in Garrison or Camp. Grain is fed about first call for reveille. This early morning feed should be small; 2 or 3 pounds per animal is ample. Just before saddling, harnessing, or packing the animals can be watered. While this is contrary to the general principle of watering after feeding, nevertheless, the animals have been fed for over an hour and in the early morning they usually will not drink a great deal. During the time the animals are out and during stables the feed boxes and hay racks should be thoroughly cleaned and about 2 pounds of fresh hay put in the latter. After morning stables the animals should be watered and then tied in their stalls. From then until noon they have a chance to eat the hay which has been put in their mangers. At noon their second grain can be given. This should be regulated according to the animal. Assuming that 9 pounds is to be fed an animal, the division of about 2 for morning, 3 for noon, and 4 for evening would be correct. With 12 pounds, 3 for morning, 4 for noon, and 5 for evening is correct. When the grain is more than 12 pounds it is better to feed four or five times than three.

Upon completion of the noon feed the animals are tied outside except in very hot or inclement weather. After evening water call they are again tied in and should find the remainder of their hay ration in their hayracks. Then, about supper call, the evening feed of grain should be given.

The advantages of feeding in this way are that a small feed of grain is given in the morning, which the animals will thoroughly digest before going to work, and feeding of the hay before the other grain feeds keeps them from being greedy and bolting their grain without masticating it.

In camps where feed boxes are not available nose bags should be used for feeding grain. Grain is fed by issuing the proper amount to each man who feeds his horse individually. Any grain left in the nose bags should be spread on a paulin to dry and used for the next feed. Under no circumstances should such grain be scattered on the ground in front of animals. To do so invites serious dirt or sand colic. Any grain spilled out of a nose bag by an animal should be swept up for similar reasons.

In cases where hayracks are not available hay nets should be used for feeding hay. The mesh should be of such size that a small quantity only can be pulled out at a time.

If hay nets are not to be had, hay should be fed by breaking up the bales and distributing it along the picket line. It should be fed in small quantities and frequently renewed. A detail of men should be kept with the animals to prevent the hay from working back underneath the feet and being trod upon and wasted. To avoid undue waste, bales of hay should be broken only as actually required and should be carried to the animals before this is done.

Feeding Special Cases. *Animals that bolt their food.* To overcome this habit a considerable amount of bran should form a part of each feed. If this

does not produce the desired results nail slats across the manger so as to divide it into compartments or place a few large stones in the feed box.

Windsuckers and cribbers. If possible, feed windsuckers and cribbers apart from other animals and in such a way as to prevent their practicing these habits.

Animals that "stock". This is a condition in which the legs swell in the fetlock region.

The rations of animals predisposed to this condition must be carefully regulated. If allowed to rest for even a few days the ration must be reduced proportionately. Exercise must be given to keep the circulation of the limbs active and no more food than suffices for actual daily requirements.

Thin animals. In such cases a little food should be given several times a day. As the animal gains in strength the quantity of each feed may also be increased. Water should be supplied in unlimited quantities. Steamed or boiled grain is an excellent conditioner. Such a feed should be thoroughly cooked and fed lukewarm with a little salt added. A cooker can be easily improvised.

Care of Forage. Dampness is responsible for the early decay of forage in storerooms, even though this forage was of standard grade and condition when it was received. Hay and grain rooms must be kept ventilated at all times. Forage should not be piled on the floors nor should it be so piled that it is in contact with the walls. Boards properly spaced so that the air may circulate under the pile should be used as a foundation for each pile. Spaces should be left between piles and between each pile and the walls and the ceiling in order that air may circulate freely around them.

Feeding Maxims. Water before feeding or not until at least one hour afterwards.

Never feed grain to heated animals; hay will not harm them.

If expecting hard work immediately after feeding, give only a half feed.

Do not work the animal immediately after a full feed.

Use nose bags when feed boxes are not available.

Use hay nets when no mangers are available.

When practicable, give a small feed of hay before each grain feed.

Never feed a large hay feed immediately before grain.

Give a bran mash at least once a week, preferably before a day of rest.

Feed salt.

Never feed hay on the ground if it can be avoided.

When feeding in feed bags remove them as each animal finishes.

Keep feeding utensils clean.

Feed clean food.

Watch your horses feeding and know which are the slow and the shy feeders.

Watch their condition and fix the ration for each horse according to his needs.

Graze whenever the opportunity occurs.

Encourage men to bring handfuls of grass or other food to their horses.

Be economical in feeding, waste nothing, let the horse get the full value of his ration.

Watering.

General. Under average conditions animals require about 8 gallons of water per day. Excessive heat and heavy work will double ordinary requirements.

Animals suffering from communicable diseases should always have a separate watering place. When practicable, such animals should be watered from individual buckets. Neglect of these precautions may cause a spread of disease throughout the command.

During watering there must be no shouting or confusion of any kind.

Restless and kicking animals should be watered separately.

Never allow an exhausted animal to drink his fill at once, especially if he

has gone long without water. Give him a little at a time at 5 or 10 minute intervals until he is satisfied.

Watering in Camp or Garrison. In camp or garrison animals should be watered three times daily under average conditions. At work, especially when the weather is warm, four times daily should be the rule. Water should be given previous to feeding.

Animals should not be watered for at least an hour after feeding, but they may be allowed to drink freely while at work, even though sweating. If brought in hot, they may be given a few swallows at intervals, but should be kept moving until they have cooled down.

Care should be taken not to allow too many animals to water at once, only such number as there is plenty of room for being taken to the trough. They should be allowed ample time to drink their fill and not be led away the first time they raise their heads from the water. This must be carefully explained to the untrained man. Animals should be led to and from water at a walk and, if possible, not more than two animals per man.

Stable Management.

General Provisions. In mounted organizations the organization commander is responsible for the proper performance of stable duty in his organization. He should see that the men on duty at the stables are properly instructed and that the stable routine prescribed by him is faithfully carried out. An officer should habitually be present when horses are groomed (''Stables.'')

The animals are assigned to stalls and to places on the picket line by platoons or sections. When not being used or fed they should stand during the day, except in very cold, very hot, or stormy weather, at the picket line or be at liberty in the corral.

Stable Floors. The floors of stables and aisles should be thoroughly cleaned daily. During warm weather brick, cement, and stone floors are best cleaned by scrubbing with water, using the hose and stable brooms. Earthen floors at all times and hard-surfaced floors in cold weather are cleaned by scraping with a shovel or hoe and sweeping with a stable broom.

If the stables wear smooth and become slippery, the surface should be roughened by chipping with a cold chisel and a mallet. If slippery from ice the surface should be sprinkled with sand or sifted ashes before the bedding is put down. Likewise, when necessary, the aisles are covered temporarily with bedding and the approaches with sand and cinders to prevent the animals from slipping.

Earthen floors require continual work to keep them clean and smooth. As soon as wet depressions occur they should be dug out and filled with fresh clay bound with cinders or crushed rock. The floor at the front of the stall for a distance of about 2 feet from the rear edge of the manger should be level in order that the animal's front feet may rest on a level surface. Back of this space the floor should slope gently to the rear to provide drainage. A drop of about 2 inches is sufficient.

Mangers. Feed boxes and mangers should be brushed out daily, care being taken to see that all particles of food are removed and that woodwork surrounding them is also kept free of particles of food. This is especially important in warm weather, when fermentation is most likely to occur. Advantage should be taken of exposure to sunlight and fresh air to keep feed boxes clean. In addition to the daily police, which should be thoroughly efficient, a monthly (or oftener, if necessary) cleaning of feed boxes and the woodwork immediately surrounding them should be made. This should be done by scraping and scrubbing with soda ash and hot water.

A 5 per cent soda ash solution (5 pounds of soda ash to 12 gallons of water) will be used. To clean feed boxes this mixture should be placed in a kettle such

as is used for cooking feeds, a galvanized can or other suitable receptacle large enough for the purpose, and brought to the boiling point. The feed boxes should be collected and, after being cleansed and all food particles removed, placed in the boiling solution for a period of from three to five minutes. They should be removed with an iron rod with a hook at one end and thoroughly rinsed. This is best done by the use of a hose when a water system is available. None of the soda-ash solution should be allowed to remain upon a feed box, as it will irritate the mucous membranes of the mouth and lips of the animals. Care should be exercised by those handling the solution to prevent its coming into contact with the skin or mucous membranes (particularly of the eye), since the solution is irritating to such tissues.

Woodwork. There should be no sharp or rough projections in the woodwork of the stables on which animals might injure themselves. All fittings should be flush with the surface to which they are attached. Some form of quick release should be provided for the rear end of the kicking bar. All woodwork within reach of the animals should be protected with sheet metal or painted with a thin coat of gas tar. Other woodwork and brick should be painted a light shade and then kept clean and free from dust. Whitewash should not be used on the woodwork of the manger, as it may be rubbed off and cause severe irritation of the eye. If used elsewhere about the stalls it may be a great nuisance through rubbing off on the animals.

Three tablespoonsful of lye in a bucket of warm water makes a good solution for cleaning the coating of dirt from the mangers and woodwork of the stalls and improves the appearance of the stables. Care should be exercised when using this solution that none of it gets on forage or bedding.

Water Troughs. Water troughs should be emptied and thoroughly cleaned each morning. A water trough placed in a corral should be kept plentifully supplied with water at all times when the animals are in the corral. Under no circumstances should strange animals be permitted to drink at the water troughs or be fed in the stables. One animal with a contagious disease may affect all the animals of the organization.

The Corral. The corral should be cleaned at least once a day. Thorough drainage should be provided and all depressions kept filled so that pools of water will not form after rains.

The corral fences should be of sufficient height and stoutness to restrain all animals turned into the corral. They should be able to withstand considerable shocks and should be kept in a thorough state of repair at all times. They should be entirely free of all rough or sharp projections. The gates to corrals from the stable and from the outside should be particularly stout and should be kept in a thorough state of repair. They should be kept securely fastened, should be free from all rough or sharp projections, and all fittings should be flush with the materials of which the gate is made.

The picket line and corral should be sprinkled to keep down the dust. Crude oil may be used to advantage. If there is no shade, shelter from the sun should be extemporized from any available material. This is very important, as animals lose condition rapidly if forced to stand in the hot sun for long periods of time.

The Picket Line. In garrison or permanent camp the picket line should be elevated about 5 feet above the ground on heavy posts. The picket line may be made of 1½-inch rope or small wire cable. It must be kept taut at all times. The length of line must be such as to provide 4 feet of space for each animal.

A second line below the first, breast high, is excellent for keeping the animals all on one side. It prevents fighting across the line and the tangling of animals.

The standings along the picket line should receive the same attention and care as stable floors. A foundation of stone should be provided with a covering of gravel or cinders. In wet climates the standings should be raised above the ground level.

The picket line should be placed on firm, sloping ground. If there is insufficient slope, it must be constructed, preferably sloping from line to heels, and drained by a ditch running parallel to the line and about 10 or 12 feet from it. If necessary to locate the line on a considerable slope, the line should be run up and down the slope instead of on a contour around it.

Securing Animals. For tying an animal in a stall the proper length of rope is such as will permit him to lie down and get up with ease. This length is slightly less than the height above the ground of the tie ring in the manger.

For tying an animal on a picket line the length of rope should be no more than enough to permit him to reach the ground comfortably.

Any knot which is perfectly secure and capable of being untied rapidly may be used for securing animals. A satisfactory knot is tied as follows: Pass the free end of the tie rope over the top of the picket line, then over the fixed end (attached to the halter), and form a half-bow; next pass the loop of the half-bow over the picket line and under itself. To free the knot disengage the loop from under itself and pull the loose end.

Picket lines should be kept under guard to prevent loosing or entangling of animals. Men must be cautioned to move quietly among animals at the picket line to avoid confusion and possible stampeding.

Fire Prevention. All stables must be provided with the necessary fire equipment, including knives for cutting halter tie ropes. Periodic fire drills should be held in which each man is assigned his proper duties. Smoking in stables should be strictly prohibited.

In a fire animals become panicky and attempt to return to their stalls or to stampede. It may be necessary to blindfold an animal to get him out of the stable. Animals must be securely tied or held outside the stable as soon as removed.

Ventilation. Ventilation must be thorough and continuous without draft. In closed stables ventilation is effected by means of ventilators, louver boards, windows, and doors. Animals rarely suffer from cold air, provided there is no draft. They do, however, suffer greatly from foul air; hence, the importance of an abundant supply of fresh air. Ventilators and louver boards are constructed in the stable roof to carry off the warm, tainted air. The principal supply of fresh air is obtained through windows and doors. Windows should be built to hinge at the bottom and open inward, thus forcing the incoming fresh air up and over the animals instead of directly on them. Doors are apt to cause drafts. They should be closed on the windward side in stormy weather. Any unpleasant odor on entering a stable is an indication of insufficient ventilation and should be corrected immediately.

Bedding. The provision of a good bed is an important detail in the economical management of animals. A good bed has a marked effect in inducing animals to lie down frequently and for long periods during both day and night, and it also prevents injuries to elbows and other parts in contact with the stable floor. The bed should be level, dry, warm, and elastic and have a clean surface for the animal to lie upon.

Good bright, clean, coarse straw, either wheat, oat, or rye, is the best article for bedding. Numerous other articles may be used, such as leaves, shavings, sawdust, and even sand. When sand is used the animals must be watched, as sand colic may develop.

Hay of poor quality is occasionally used as bedding. Care must be exercised not to use it when mouldy or very musty, as animals will eat it, usually with ill effects afterwards.

In the morning the bedding should be taken up and carefully shaken out and sorted. That part which can be used again should be spread out where it can aerate and dry out. A good way is to place it in bedding racks and in good weather carry it out to air and sun. When bedding at the top of the racks

dries it is turned over so as to expose all of it to the sun. In bad weather racks are hoisted out of the way inside the stables. Great care must be exercised to salvage all bedding which can be used again; otherwise the allowance is insufficient.

Bedding racks should be about 8 feet long and 4 feet wide, with the bottom raised 1 foot from the floor. The framework should be light and strong and covered on the bottom and sides with light wire screening. If not available they should be improvised.

In the afternoon the dried bedding is mixed with such fresh bedding as may be necessary and laid down. This should be done as late as practicable in order to provide a clean, dry bed. The bed must be soft and even and somewhat thicker toward the head. It is best to lay successive layers of bedding crosswise to each other, thus forming a more elastic and durable bed. In bedding down, bedding should not be spread up to the manger, as animals will eat it, soiled or fresh.

Grooming. Grooming is essential to the general health, condition, and appearance of animals. Men should be taught that upon grooming mainly depends immunity from lice and mange. In the field as well as in garrison officers should permit no service demands or trying weather conditions to prevent utilizing the necessary time and labor involved in one good daily grooming for their animals. The value of grooming depends upon the thoroughness and speed with which it is done. Men should be encouraged to work hard and rapidly and to do a thorough job in a minimum time. Each man's grooming should be inspected as soon as practicable after completion. Grooming by squad is an efficient method and develops leadership in squad leaders.

Time for Grooming. Every animal in the stable should be groomed thoroughly at least once each day. Before leaving the stable for work or exercise horses are brushed off; mane, if any, neatly arranged; tail brushed out; eyes cleaned; nostrils and dock wiped out; and feet cleaned.

On return from work or exercise grooming should be proceeded with immediately, except for such delay as is necessary incident to wiping off and putting away equipment. Heated, wet, or sweating animals should be cooled out before being groomed. In the case of such horses the equipment should be removed and quickly put aside, then the horse given a brisk rubbing with the wisp or drying cloth, blanketed, and walked until cool. A couple of swallows of water every few minutes assists the cooling out and is beneficial to the animal.

Grooming Tools. Each mounted man should have the following grooming kit: Currycomb, horse brush, dandy brush (if procurable), hoof hook, grooming cloth, and wisp.

The currycomb. This tool may be used to groom animals that have long, thick coats, to remove caked mud, and to loosen matted scurf and dirt in the hair.

The currycomb produces the best effect when applied gently in small circles rather than with pressure and in long strokes, like the brush. It should never be used on the legs from the knees and hocks down nor about the head. The use of the currycomb should be prohibited in grooming animals recently clipped or that have a fine, thin coat of hair. In most cases the hair may be loosened and ruffled sufficiently by a wisp.

The horse brush. This implement is the principal tool used for grooming. When properly used it reaches the skin, the bristles or fibers penetrating through the hair of the coat.

The dandy brush. This tool is not an article of regular issue, but its use is strongly recommended wherever it can be procured. When used it takes the place of the currycomb and cleans the horse more quickly than the horse brush alone. When used it should be followed by the horse brush.

The hoof hook. This implement is used to clean out the feet. It can be easily made by the horseshoer. Three-eighths-inch iron wire or a horseshoe drawn out to that dimension make excellent ones. The wire should be about 8 inches long to begin with. The end is sharpened slightly and given a rounded point, then bent at right angles about 1¼ inches from the point. The other end can be turned into a small ring for a handle. The point should not be sharp.

The grooming cloth. The grooming cloth is used to remove dirt and dust from the coat, to wipe off the head, to clean the dock, and to polish the coat. It is also used to dry horses. It is usually made from old toweling or condemned blankets, cut in a 2-foot square or even larger.

The wisp. The wisp is used in regular grooming and drying out wet animals. Wisping is really a form of massage and is a most valuable means of improving the condition of the skin and coat and for making muscle. It should not be omitted from grooming unless prevented by shortage of straw or the necessity for great haste.

A wisp is made from straw or hay in the following manner: Twist the material into a rope about 8 or 10 feet long. Make two loops at one end, one loop being slightly larger than the other. The remainder of the rope is now twisted alternately around each loop until the end is reached, when it is passed through the extremity of each loop and tucked under one of the twists. The completed wisp should be no wider than can be conveniently grasped by the hand, about a foot long and 2 or 3 inches thick.

In wisping wet horses the wisp should be worked forward and backward well into the coat. After drying in this manner the coat should be laid flat. In regular grooming the wisp should be dampened slightly to make the straw less brittle.

Washing and Disinfecting Grooming Tools. The washing and disinfecting of grooming tools, either to clean them or as a precaution against the spread of disease, may be necessary. Clean thoroughly by dipping them in a strong soda solution, followed by dipping in a strong salt solution to stiffen the bristles. Then immerse in a 1 per cent solution of cresol for 15 minutes, shake out, and stand with bristles down to dry. Grooming cloths can be treated similarly.

Normal Method of Grooming the Average Thick-Coated Animal. Clean out the feet with the hoof hook, working from the heel toward the toe, being careful not to exert too much pressure. At this time the feet should be inspected by each man for nails, thrush, or other disease. Any horse in need of shoeing or of attention for other cause must be reported to the stable sergeant.

Take the currycomb in the right hand, fingers over the back of the comb, and the brush in the left hand; first use the currycomb on the near side of the animal, beginning on the neck, then breast, withers, shoulders, fore leg down to the knee; then back, side, belly, croup, and hind leg to the hock. Change the currycomb to the left hand and brush to the right and proceed in a similar manner on the off side. Strike the currycomb against the heel frequently to free it from dirt. The currycomb should never be used about the head nor on the legs from the knees and hocks downward. When it is necessary to loosen mud or matted hair on the fleshy parts of the body, apply the currycomb gently.

Take the brush in the left hand and currycomb in the right; brush entire near side of the animal in the same order as when the currycomb was used, except that in brushing the legs brush down to the hoof. Change brush to the right hand, currycomb to the left, and proceed in a similar manner on the off side. After every few strokes clean dust and hair from the brush with the currycomb. In using the brush the man should stand well away from the animal, keep his arm stiff, and throw the weight of the body against the brush. In grooming the belly apply the brush the way of the hair, the brush in the left hand on the near side and in the right hand on the off side. The skin under the flanks and between the fore and hind legs must be soft and clean.

Next brush head, mane, and tail. In cleaning mane and tail begin brushing at the ends of the hair and gradually work up to the roots, separating the locks with the fingers so as to get out scurf and dirt. Tails require frequent washing with warm water and soap.

Having finished with currycomb and brush, go over the animal with the wisp. The wisp should be held about the middle in the full grasp of the hand and brought down with a bang on the coat in the direction of the hair. The pressure should be continued throughout the stroke. Should service conditions render wisping impractical it may be omitted.

Finally with grooming cloth wipe about the face, eyes, nostrils, and dock, and give a final polish to the coat.

Special Method of Grooming Fine-Coated and Clipped Animals. Use the normal method, omitting the use of the currycomb, except occasionally to remove caked mud. In place of the currycomb the dandy brush should be used.

Hand Rubbing. Hand rubbing is beneficial, being soothing, restful to tired muscles, and stimulating to the circulation. It also removes loose hair and helps to produce a glossy coat. The hands are slapped down briskly on the coat, one after the other, with the weight of the body behind them, then moved over the skin with firm pressure.

On unsaddling after a march rub the back with a circular motion to restore circulation.

After very hard work the horse's legs should be hand rubbed briskly up and down with the fingers and palms and then bandaged loosely.

Cleaning the Sheath. Occasionally the sheath becomes very foul from accumulated secretions and dirt and requires cleaning. Cleaning should be accomplished by first removing very carefully the accumulated material and then washing with warm water and castile soap.

Pulling Manes and Tails. Manes and tails should be pulled thin and even. This is done by grasping a few hairs at a time and sliding the hand up close to the roots, then giving a quick jerk so as to pull the hairs out by the roots. Always work on the longest hairs and on the underside of the mane and tail.

Tails should be shortened to about 4 inches below the hocks. The dock and upper part of the tail should be kept free from coarse hairs.

Trimming Manes and Fetlocks. Fetlocks should be neatly trimmed, and that part of the mane on which the crown piece rests should be closely clipped.

Clipping manes is optional with regimental commanders. It is, however, strongly recommended, especially for field service. When manes are clipped the clipping should be done close all the way up.

Clipping. The clipping of heavy coats is strongly recommended. It should be done in the fall before the winter sets in and as often thereafter as may be necessary. During severe weather in cold climates it should be done over the neck and body only, leaving the hair on the legs. Special care must be taken to blanket clipped animals during sudden changes of weather and when it is extremely cold or damp. The least inclement days should be selected for clipping animals.

Washing Animals. The washing of animals as a general practice is to be strongly condemned. Cleaning legs by washing should not be permitted, as scratches and grease heel result. Whenever an animal is washed he should be treated, as prescribed for cooling out animals.

Blanketing. Blankets are used for the following purposes:

As a protection against cold and storm.

To cool out wet or heated animals.

To conserve the ration by conservation of heat energy during severe weather.

To improve the coat.

To protect thin-skinned and clipped animals from flies.

As a protection against chill in the case of sick animals.

Both lined and unlined blankets are issued. A serviceable fly sheet can be made from grain sacks. Horse blankets should be worn while at rest only.

Blankets must be properly adjusted and secured; otherwise they are apt to slip off and become torn. All straps and fastenings must be kept in good repair. Blankets must be kept clean. Those used on animals suffering from communicable diseases must be thoroughly disinfected before being used on other animals.

Exercise and Conditioning. These subjects are very closely related, as conditioning is largely dependent upon the exercise and feed given. Animals are considered to be in fit condition when the body and muscular organs are in condition to perform without injury the work required. Fit condition is accomplished by systematic exercise and feeding, which must be continued even after the condition has been attained.

The exercise must be regular and graduated and always within the limits of the animal's strength. Working tired animals when unfit is very likely to cause accidents or disease. This is the time when they are most likely to sustain bad falls and sprains. But once animals are put in fit condition any work within reason not only is performed without great effort but adds to the quality of the condition already attained.

If animals are not worked for any considerable time the process of conditioning has to be repeated. The minimum amount of systematic exercise necessary to maintain animals in working condition is two hours daily. Ordinarily animals regularly exercised do not suffer by resting on Sunday, but the ration must be reduced accordingly.

The kind and amount of exercise given to animals depends upon the work they are to perform, the condition of the animals, and the number of men available to give the exercise. When there is one man available to exercise one or two animals, as in a troop of cavalry, the most satisfactory exercise can be had by organization under the supervision of the troop officers. But when there are many animals and few men as at remount depots and veterinary hospitals special means must be adopted.

Exercise tracks or rings are probably the most economical means of exercise, considering man power, but there is more danger of accidents than when riding one animal and leading another. A circular or oval track about 15 feet wide and inclosed between fences 5 or more feet in height is all that is necessary. The track surface should be springy and well drained. Animals should be admitted to the track in groups of not more than 24 at a time. There must be a rider to lead and one to follow each group. By this means the gait can be regulated and stampeding or crowding eliminated. Turning animals loose in corrals and driving them around is not recommended, as too many accidents usually occur.

Any form of exercise should begin with a period of 10 or 15 minutes at a walk so that good circulation may be established. It should end at a walk in order that animals may be returned to the stables dry and breathing normally. No exercise should be given on hard roads. When one man is exercising two horses he should ordinarily ride one out and the other in, and he should lead each horse alternately on his right and left. Playful or vicious animals should be led with a very short rein to prevent accidents.

Ordinarily the greatest part of the exercise should be at a walk. A fair proportion for the average riding animal in normal condition would be for a 2-hour period—walk 7, trot 2, gallop 1. This schedule varies of course with conditions.

The routes selected for exercise should be varied from day to day to avoid monotony. It is best to return by a different route from the one taken going out so that animals do not fret when they are headed toward stables.

Draft and pack animals should do a considerable part of their exercise drawing loads and carrying packs so that their muscles may be hardened to the work.

The quality and quantity of sweat is generally taken as an indication of condition. Profuse lathery sweat is a general indication of poor condition. Thirst and sweat, however, are to be expected in animals under exercise. The weather must also be taken into consideration. Warm or damp muggy days cause abnormal sweating, while on cool days it is often difficult to get up a sweat.

Care of the Feet. Every officer in charge of animals must continually watch the condition of the animal's feet and see that they receive proper care. Every man who rides or drives an animal must do the same, reporting promptly to his squad leader or the stable sergeant any need for attention, no matter how slight.

Stable Vices and Their Prevention. Stables vices are objectionable habits of animals, practiced while idle, as in the stable or on the picket line, and caused usually by nervousness and restlessness, but not infrequently by poor stable management. As a general preventative to their contraction, animals should be kept out of the stables as much as possible during the day, either at work, on the picket line, or loose in the corral. During very cold, very hot, or stormy weather horses should not stand on the picket line or be at liberty in the corral.

Most stable vices when once acquired are incurable, but they may be wholly or partially prevented, temporarily at least.

Weaving. A nervous habit in which the animal rocks to and fro, similar to a bear kept in confinement. Such animals should be kept tied short and out of sight of other animals.

Windsucking and cribbing. Nervous habits closely related. In windsucking an animal swallows air by arching the neck, drawing the head toward the chest, and giving a gulp. The cribber accomplishes the same end by catching hold of the manger with his teeth to obtain a pull and, as he gulps, emits a grunt. Both of these vices are incurable and are likely to be acquired by other animals stabled near by. They may be prevented by the use of a broad strap fitted tightly around the neck with a small wooden or leaden gullet plate stitched on so that it projects on each side and sticks into the throat when the neck is bent. Another method is to buckle a narrow leather strap around the neck rather tightly. Indigestion and colic frequently result from these vices.

Biting. Usually the result of animals being teased by men in a playful way, but, once acquired, is a dangerous vice. As a preventative, teasing must be stopped, and if the animal is dangerous only one man should handle him. The danger may be lessened by use of a muzzle, a thick wooden bit, or a side stick.

Kicking against the stall. This habit is usually acquired through lack of work. It may be cured by using a short chain, one end of which is fastened to a hobble around one rear postern, the other end attached to a small wooden ball.

Gnawing the woodwork. A restless habit acquired by animals kept tied up without work or when deprived of hay. The cure is work and plenty of hay. The prevention is to wrap the woodwork with wire or cover it with tin.

Eating dung. With some animals this habit may be classed as a vice. It is a morbid appetite resulting from poor condition, caused by chronic indigestion. Animals in fit condition seldom form the habit. The only prevention is to keep the animal in good condition, well fed and exercised, and tied so that he can not reach his own or other animals' droppings.

Greedy feeding. A greedy feeder eats as fast as he can, grasping huge mouthfuls at a time and throwing his feed with his muzzle out of the box on the ground, and later eating the dropped grain. This results in indigestion, the bolting of feed, eating dirt and trash, and is wasteful on account of the amount of forage lost. To prevent this vice place several large stones in the feed box, feed the grain as chop, place a wire screen with half-inch mesh inside of the box and resting on the grain, or feed in a wide-bottomed feed box.

Tearing blankets. The only prevention is the use of a leather muzzle.

Halter pulling. This is an expensive and troublesome habit. The vice is usually contracted by the use of weak halters or ropes which permit the animal

to break away when frightened. Tying with the reins has the same effect. As a prevention use a very heavy neck strap and tie rope. The vice is sometimes cured by tying a piece of rope around the animal's band just in rear of the forelegs, from which the tie rope is run between the legs through the halter ring and to the manger or picket line. After a few attempts to pull away the animal will probably give up. This should be applied for several days and then just a light cord tied around the band as a reminder.

Restraint and Control of Animals. In the management of animals restraint is sometimes necessary. The methods are varied and the one to be used depends largely upon the individual animal and the object of the restraint. Always select the mildest and least dangerous method that will accomplish the end sought.

The twitch. The twitch is the simplest, handiest, and most common method of restraint. It is effective in the majority of cases as a simple measure, but should be used always with caution and only when necessary. As it shuts off circulation in the lip, it should never be used continuously for an extended period of time and never with greater force than is actually necessary.

A twitch is made by running a small piece of rope or rawhide through a hole in the end of a rounded piece of wood 2 to 5 feet long, such as an ax handle, and tying it into a short loop.

The loop of the twitch is passed over the upper lip, which is seized by the hand and drawn forward, care being taken to turn the edges of the lips in so as to prevent injury to the mucous membranes. The cord is then twisted by turning the stick until sufficient pressure is obtained.

The side stick. This method of restraint is used for vicious animals to prevent them from biting men while grooming or to prevent an animal from doing injury to a wound. The side stick is made from a stout wooden rod from 3½ to 4 feet in length, with a small cord or strap at each end, one for attaching to the noseband of the halter, the other to the surcingle.

The muzzle. This means of restraint is useful to prevent an animal from eating bedding or chewing or tearing the dressing from a wound. Muzzles are best made of leather. They should be provided with attachments for fastening to the halter rings or with straps which are sewed to the muzzle and fastened over the pole.

The crosstie. This consists of tying the head in an elevated position with two tie ropes. The ropes extend from the tie ring in the halter to opposite sides of the stall. The crosstie is useful to prevent an animal from chewing a wound or dressing and from lying down when it is desired to keep him standing.

The blind. Blinds are used as a means of restraint for nervous or vicious animals. The desired docility is attained by depriving the animal of sight. A blind may be made in the form of a hood or of a piece of leather broad enough to cover the eyes and provided with strings for fastening to the halter.

Neck cradle. The neck cradle is of value to prevent an animal from chewing or tearing a wound. It consists of from 8 to 12 pieces of hardwood about 1 1/3 inches in diameter and about 18 inches long, pierced at each end by a hole through which is passed a cord or small rope. The rods are kept 3 or 4 inches apart by knots in the rope. The ends of the rope are tied at the upper border of the neck and so adjusted that the upper ends of the rods are just back of the lower jaw, the lower ends resting on the shoulders.

Knee strap. In shoeing an animal or when operating on him it may be necessary to fix a foreleg. A strap or rope is used to fasten the postern to the foreleg. The leg is first well bent at the knee. A rope or strap is then attached to the postern by means of a loop and the free end passed over the forearm and back to the postern, drawn tight, and tied or buckled.

The side line. For securing a hind leg the side line is used. It is made of ¾-inch rope about 20 feet long and a leather hobble provided with a ring. The

hobble is placed around the postern of the leg to be raised and buckled snug. One end of the rope is secured around the animal's neck by a nonslip tie and the free end passed through the hobble ring and back through the loop. The leg is then brought forward by pulling on the free end of the rope and held in the desired position by an attendant. If desired, the leg may be drawn backward by tying a rope to the hobble and having an attendant draw the leg to the rear.

The casting rope. The casting rope is made of ¾-inch rope about 50 feet long. This is doubled and from 3 to 4 feet of the doubled end tied in a nonslip loop which is passed over the animal's head and adjusted about the neck. The free ends are passed backward between the forelegs and around the rear posterns or through hobbles, if used, thence upward and back through the loop at the neck. A strong man should hold the animal by the head and two assistants grasp the free ends of the rope and by a quick pull to the rear take the animal off his feet.

When the animal is down the man at the head should grasp and hold the head firmly against the ground. At the same time the attendant handling the ropes on the side not against the ground should quickly draw the legs up against the side and secure them by a double half hitch made of the free ends of the rope. When one side is thus secured the animal may be rolled over and the other legs tied in a similar manner. Keeping the animal down is facilitated by the man at the head placing one knee on the neck and raising the animal's head from the ground.

Casting can be done with least effort if one foreleg is secured by means of a knee strap. If it is desired to cast on a particular side it can be done by one attendant pulling in a forward direction on that side and the other pulling to the rear. When necessary to pass ropes around the rear posterns (case of hobbles not being available), always bandage the posterns to prevent rope burning.

The casting rope may be necessary to secure an animal for an operation or, in rare cases, for shoeing.

The war bridle. This method of restraint produces effects that are lasting and beneficial, making the animal quieter, more tractable, and more amenable to discipline. Its use is especially adapted to the training of young animals to be shod and in handling the heads of unbroken or nervous animals.

The war bridle is made and applied in the following manner: Take about 20 feet of 5/16-inch, 3-strand hemp rope and make a 4-inch loop at one end. To apply, stand on the near side of the animal; place the loop in the mouth, inclosing the tongue and lower jaw; carry the rope up on the off side, over the poll, and down the near cheek to about opposite the eye; then double back over the poll, leaving a bight hanging; pass the running end of the rope along the off cheek and through the mouth between the upper lip and the gum and up through the bight on the near cheek, then down through the lower part of the loop; draw the free end snug without changing the position of the bight. A moderate pull on the rope tightens the bridle, producing pressure on the poll and to a lesser extent on the mouth. This has a strong moral effect, inducing the animal to stand quietly. The rope should not be pulled unduly tight, but always with only moderate tension and with a slight twitching to attract the animal's attention.

Records. The following records are kept at each stable by the stable sergeant:

1. Descriptive card of public animals (or horse record card).
2. Record of stable property.
3. Forage record.
4. Morning report of animals.
5. Shoeing record.
6. Animal sick report.

Descriptive cards of public animals are made out, one for each animal, on the prescribed form. The forms give the name and number of the animal, age, sex, color, and markings. They should contain a complete record of the service of the animal from the time of purchase until finally disposed of. Such data as training, by whom trained, qualification as to jumping, pistol and saber work, cross-country work, and sick-report record should be fully and accurately recorded on the descriptive list. Where spaces on the prescribed form are not adequate, additional sheets should be added so that all data of interest may be recorded.

All stable property and equipment are listed in the property record book, which has been ruled for the purpose. Any convenient form will suffice. The record should be kept accurately and should show each class of tool or equipment separately.

An accurate record is kept of all forage received, on hand, and consumed. It should be kept posted accurately from day to day. The form shown below will be used for the purpose:

FORAGE RECORD

----------(Organization)

(Month)---------- --------(Year)

Date	Number of animals	Grain on hand	Grain received	Grain consumed	Grain balance	Hay on hand	Hay received	Hay consumed	Hay balance	Remarks

A record is kept of all animals in the stables, showing the changes that occur from day to day. The form shown below, painted upon the bulletin board at the stable, will be used for this purpose:

MORNING REPORT OF ANIMALS

----------(Organization)

	Duty	Hospital	Sick in stable	Being shod
Public horses				
Private horses				
Mules				

CHANGES

----------,
Stable Sergeant.

An accurate record of the shoeing of all animals of the organization is kept on the form which appears below and in the manner shown.

SHOEING RECORD

---------- ----------(Organization)

----------(Year)

Animal's No.	Animal's name	January	February	March	April	May	June	July	August	September	October	November	December	Remarks
T-10	Murat.	5	9	11	10	15	----	----	25	20	18	20	16	Hind shoes removed and not replaced March 11. All shoes removed May 15, sick in stables May 15 to August 25.
		10	----	----	30	----	----	----	----	28	----	----	----	

EXPLANATION.—The circle appearing in the rectangle for any month represents the body of the horse. The lines outward from the circumference represent the legs of the animal. The number in the circle represents the day of the month. Thus, in the case of T-10, "Murat," this horse lost the shoe from his right fore on January 5 and the record shows that it was replaced that date. On January 10 his other three feet were shod. On February 9 he was shod all around. On March 11 he was shod in front and the remark shows that his hind shoes were pulled and left off. On April 10 he was shod in front. On April 30 he was shod behind. On May 15 all shoes were removed and not replaced. On August 25 he was again shod all around, etc.

An animal sick report is kept at each stable. The following form in a book is recommended.

ANIMAL SICK REPORT

.....(Organization)
From:.....(Date)
To: .....(Date)

Date	Brand	Name	Diagnosis	Status	Remarks

The first three columns are filled in before the animals are presented to the veterinarian, the organization commander signing on the line below the last entry. The sick report is presented to the veterinarian at sick call, who fills in the last three columns and signs his name on the line below the last entry. The fifth column is filled in by the letters H (hospital), S (stables), or D (duty). Animals marked H are admitted to the veterinary hospital, those marked S are returned to the stable and presented at sick call the next day, and those marked D are returned to the stable and not presented at sick call again unless further sickness developes.

Any advice of the veterinarian as to feeding and exercise of the individual animal should be entered under "Remarks."

Inspection of Shoeing.

Organization commanders and platoon leaders should inspect all animals under their commands daily. At "Stables" they should inspect animals freshly shod, the horseshoer and stable sergeant being present for this inspection. Animals should be examined on a level surface; otherwise it is impossible to determine whether the animal is standing correctly or not.

Points to Be Observed. The following points should be carefully noted and any improperly or carelessly shod animals returned to the shop for correction:

With foot on a level surface. View the foot from the front to see that the legs are set vertically under the body. View from the side to see that the long pastern bone makes an angle of about 45° with the cannon bone.

The fit of the outline of the shoe. Does the shoe follow the outline of the foot to the last nail hole and from there extend outward, allowing proper space for expansion? Note particularly whether the wall has been rasped to fit the shoe.

The toe clip. Is the toe clip in the center of the toe? Is its height equal to about twice the thickness of the shoe, properly finished, and seated?

The clinches. Are they about 1 inch above the bearing surface of the foot and the proper distance apart? Are they well turned and set in? Are they smooth and of sufficient strength?

With the foot raised. Is it the proper size and weight? The last nail hole not farther back than the bend of the quarter?

The preparation of the foot. Has enough horn been removed? Has too much been removed? Is the foot level?

Bearing surface of the foot. Does the shoe rest evenly on the wall, covering the buttress and showing no air spaces at any point?

Concaving the shoe. Is the shoe properly concaved? There should be no sole pressure at any point.

Use of the knife. Has the knife been used on the bars, sole, or frog?

The nails. Are they well seated in the crease? Are they of the correct size? All the same size?

The heels of the shoe. Are they the correct width and thickness, properly rounded, without sharp edges or points? Is their length even with the bulb of the frog?

In the case of animals shod with calked shoes. Toe calk. Is it properly secured and of proper height and length?

Heel calks. Are they of the same height as the toe calk? Are they properly turned and finished?

ON THE MARCH.

Preparation.

Preparation for a march should begin several weeks before the march is to begin. Troops and animals must be hardened by training. This hardening process should be a gradual one, in which the length of marches, short at first, is progressively increased until the command is in shape to cover the ordinary distance of 25 miles a day without distress. Careful attention must always be given to shoeing before starting on any march.

Rate of March.

The average marching rate of cavalry varies from 3½ to 6 miles an hour. The rate varies inversely with the size of the command—the larger the force the slower the rate. Other factors also affect the rate of a marching force, such as weather and road conditions; the condition of men and animals; the tactical situation; and the time of day in which the march is made. The rate is decreased when men and animals are in poor physical shape; when the roads are slippery with mud, snow, ice, or are rendered difficult by shell holes, obstacles or demolitions; when fog, mist, darkness require that additional precautions be taken; and when hostile air or ground forces harass the marching columns. The rate of cavalry covering the retirement of an infantry force is dependent naturally upon the rate of the latter. Wheeled transport slows down a cavalry column materially. The four-mule escort wagons, under normal conditions, can be expected to cover 3½ miles per hour. When the mounted elements travel at a 5-mile rate, the wagon elements lose distance at the rate of 1½ miles for every hour marched. For this reason it is advisable to group all vehicles (except spring wagons which can keep up with the troops) and cause them to follow the mounted column at their most economical speed.

Conduct of March.

Gaits. The rate of march is maintained by a combination of the walk and the trot, with frequent periods of leading. The start of any march should be slow, the walk being maintained for the first 15 or 20 minutes. A halt of 15 minutes should be made at the conclusion of the first 45 minutes of marching. This halt permits men and animals to relieve themselves, and gives time for the adjustment of equipment. Thereafter hourly halts of from 5 to 10 minutes are made. The trot should be used on level ground where the going is good and the walks and leading on hills or over bad or heavy stretches. The rate of march when leading is 3 miles per hour the walk 4 miles and the trot 8 miles. No gait should be maintained so long without change as to weary either animal or man. After 10 or 12 minutes at the trot a short walk should follow. Depending on conditions mounted men should lead from 10 to 20 minutes each hour spent on the march.

Formation. On muddy, sandy or very dusty roads mounted troops should march on both sides of the road to permit men and animals to pick their way. When marching along hard surfaced roads riding animals should be kept off the road if the going at the sides is soft and suitable.

If the military situation permits troops should travel in small bodies with sufficient distance between them to allow the dust to settle or blow away. The position of units in column from head to rear should be rotated each day.

Noon Halt. When marches of unusual daily length are made (40 to 50 miles or more) a halt at noon of from one to four hours is advisable. During this halt saddles are removed, backs and legs are massaged, horses watered and fed. For ordinary marches it is usually advisable to complete the trip without this long halt at noon.

March Discipline.

Seasoned cavalry can maintain indefinitely a 25 mile-a-day average. It can march 50 miles a day for several days. A squadron, less trains, can make a forced march of about 75 miles in 24 hours. Any march requires the observance of the rules of march discipline to prevent injury to animals. A forced march can not be successfully made without the most rigid observance of these rules.

Rules of March Discipline. These rules may be stated as follows:

Equipment, especially saddles and packs, must be correctly adjusted at all times. At each halt riders must promptly dismount and see to this adjustment.

Riders must maintain the correct riding seat. Lounging in saddles is a common cause of sore backs.

The prescribed gait must be maintained within units. All animals should be thoroughly schooled in the regulation gaits.

An experienced pace setter mounted on a horse with confirmed gaits should regulate the pace of each unit.

Units must be warned before changing gaits.

Obstacles must be negotiated by each unit at an even gait which must be maintained until the tail of the unit has cleared the obstacle.

Local traffic rules must be observed.

No person must leave the column without urgent necessity, and then only with specific authority therefor.

The above rules, though easily learned and understood, require the constant and unrelaxing supervision of officers and noncommissioned officers. An officer should ride at the tail of every troop so as to observe and enforce march discipline.

Crossing Streams.

When crossing a stream at an unfamiliar ford or where there is no ford the crossing should invariably be examined before committing the command to it. The sound sand footing of some safe fords begins to wash away after several animals in columns have passed and the ford rapidly deepens. In such cases the crossing should be made on a wide front.

Deep streams should be crossed on a relatively wide front to prevent damming; streams with treacherous bottoms, on a narrow front, and with limits of ford marked.

Animals should be allowed to drink before getting well into a dangerous ford, but having been committed to the crossing must be pushed vigorously ahead and not allowed to stop. It is well for riders to take their feet out of the stirrups if the current is swift. Eyes must be fixed on the point of the opposite bank toward which one is riding and not on the water.

Quicksand is dangerous and frequently shifts. Crossings on this kind of bottom should be avoided.

Swimming Animals. For swimming streams of moderate width the following method is practicable and safe: A good swimmer crosses and carries with him sufficient rope or joined lariats to reach across the stream. A man on the near bank attaches the near end of the rope to the animal's halter and an equal length of rope to his tail or saddle and pushes him into the stream. The soldier on the far bank can easily guide the animal across and the latter tows the tail rope. When the animal has reached the far bank both ropes are taken off and tied together, the knot pulled back to the near side, and

another animal crossed. Each man who can not swim catches hold of an animal's tail and is towed across in safety. This method is not slow and it takes little time to get an organization across.

The following method is the best for crossing wide, swift rivers:

Procure boats or rafts. They usually can be found, or rafts can be constructed. If there are no boats and rafts must be used, then, by the use of a number of lariats fastened together and doubled, a cable can be improvised so as to make a good ferry. This cable is gotten across to the far side by one or two good swimmers, swimming alone or with exceptionally good animals. The cable is fastened on both banks of the stream, and the raft, which should be light but capable of holding six or eight men, is pulled across by hand, aided by poles if the stream is not too deep.

The animals are stripped, except halters, and the equipment is ferried across. Several animals are crossed either by swimming or by being led from the raft. These animals, after crossing, are stood on the opposite bank in plain sight of the others. Those not yet across are held in column of twos, with the natural leaders of the organization herd in front. Halter shanks are fastened close around the necks, using knots that do not slip. A few men who are excellent swimmers attempt now to swim with the leading animals across the stream. Usually, after some delay and difficulty, the leading animals of the column see those on the opposite bank and show signs of wanting to join them. The men holding the animals in the column then turn them loose and the whole column follows the leading animals across. This method is particularly applicable after the animals have had a few such experiences in crossing streams. It may be necessary to swim or lead across from the boat or raft quite a number of animals before the desire of the remaining animals to join them is shown. This method keeps the equipment dry and gets the timid or poor swimmers across safely.

Animals are towed from boats or rafts by means of the halter shank. The boat or raft should move at the same rate that the animal swims. Three or four quiet animals can be taken across at a time; difficult ones should be taken separately. An animal towed from a small boat should be to the rear and downstream.

Streams not over 30 yards wide may be swum in column of twos without unsaddling, men retaining their seats in the saddle. Men's knees should be well up to lessen resistance; steadiness in the saddle should be maintained by grasping the pommel. This method is risky for organizations not well trained in swimming and crossing streams with animals. Unless time is important, it is better to cross by one of the methods prescribed above.

Swimming animals must have absolute freedom of the head and neck. Men must be cautioned not to pull on the reins. Absolute calmness, determination and quiet must prevail. Any excitement on the part of the men is sure to confuse and frighten the animals.

Watering and Feeding on the March.

Watering. During a march horses should be watered at every favorable opportunity. Warm horses can be watered with safety if they are to resume the march immediately. Horses destined to stand (as in reaching camp) should not be watered until thoroughly cooled.

Feeding. The principal of feeding often and in small quantities has been found beneficial by troops engaged in campaign. Animals should be permitted every opportunity to graze at the regular halts during a march. At every halt of sufficient duration the nose bag should be put on.

IN BIVOUAC.

General. Troops making daylight marches, normally obtain their rest during

the overnight halts; those units in campaign required to march during the hours of darkness bivouac in concealed locations during the day. Animals are tied to field picket lines stretched between trees or they are secured to trees. Men sleep in shelter-tents. Everything is located in bivouac with a view to a resumption of the march. Elaborate preparations of the camp site are dispensed with in making bivouac, the most important consideration being speed in affording rest for animals and men.

Procedure in Making Bivouac.

Prior to the Halt. Upon nearing the location for the night's halt the command is brought to the walk. The walk is maintained for the last ten minutes before reaching the bivouac site. Many able cavalry leaders advocate leading the last ⅓ mile or so. This not only tends to cool the horses, but also acts to relieve progressively the animal's back from the weight it has been carrying all day. This precaution is an important one and if carefully observed will prove its effectiveness in the small number of sore and puffy backs experienced by the command.

The Halt. Having reached the bivouac site the unit forms line about 8 or 10 feet from and facing the picket line which has already been stretched by the stable crew. The command is dismounted, bridles are removed and animals are tied to both sides of the picket line. Pommel and cantle rolls are removed, and cinches are slightly loosened. The men then move to the location selected for the tent camp. Shelter tents are pitched. All this is done while the horses are standing at the picket line bearing the weight of their stripped saddles. This precaution is necessary, as it permits a gradual return to normal of the blood whose course has been impeded by the weight of the rider and his equipment throughout the march. The sudden removal of all weight causes an unusually violent flow of blood to the spot freed of pressure, and results in swelling and puffiness in that area. If these puffs can not be reduced before the march is resumed—open sores are almost sure to result. This same method of guarding against injury to animals' backs should be followed in case of any halt of an hour or more.

Grooming. When shelter tents are pitched the men are marched to the picket line where saddles are removed and horses are thoroughly hand rubbed and groomed. By this time the animals should be completely cooled out. They are then quietly watered, tied on the picket line and fed.

Feeding. Order of feeding is the same in bivouac as in camp or garrison. Grain is fed in nose bags. Hay should be fed from hay nets and not thrown on the ground.

CHAPTER II.

TRANSPORT OF ANIMALS BY TRUCK AND RAIL.

Truck.

If required by the necessities of the situation, animals can be transported rapidly in cargo trucks by building up the sides of the body and constructing suitable ramps for loading and unloading. The standard B cargo truck can be adapted to the transportation of six horses and will carry five horses with their riders and equipment.

Rail.

Type Trains, Mixed Trains, or Freight Trains. While the use of type trains adapted in passenger and cargo space to the organizations they are intended to carry, facilitates the movement of troops in or near the theater of operations, with the long hauls of the zone of the interior, the usual fast schedules can not be maintained if the trunk lines are encumbered with the slower-moving type trains. For this reason it may be necessary to limit the use of type trains to those situations in which it is expected that the troops will be immediately employed on detraining. The initial concentrations and most movements entirely within the zone of the interior will be executed by using separate passenger and freight trains often moving over different roads. These can be assembled at or near their destination so as to permit men, equipment, and animals to be detraining at the same time. It will usually be necessary for freight and animals to be sent on in advance. Where an organization is too small to warrant complete passenger and freight trains a mixed train may be made up, but as such trains are slower moving than the usual passenger traffic their use is attended with the same disadvantage as that of the type train. Their use should, therefore, be kept to a minimum.

Maximum Cars in Single Shipment. A single shipment should not exceed 30 cars, as there are few rest stations where more than 30 carloads of animals can be unloaded at one time.

Halters and Tie Ropes. In all shipments of animals, except to remount depots, one halter and tie rope for each animal should accompany the shipment.

Halters and tie ropes should ordinarily be carried in sacks by the attendants, but halters may remain on the animals, the tie ropes being carried in sacks.

Forage. In less-than-carload shipments of animals, whenever there is room for forage in the car, the necessary forage for the entire journey will be furnished by the Quartermaster Corps and loaded in the car at the initial point of shipment.

In shipments of one or more carloads of animals, or in less-than-carload shipments whenever there is no room for forage in the car, forage will not be furnished by the Quartermaster Corps but will be supplied by the carriers at their regular feeding points, except when the animals are accompanying troops, in which case the necessary forage will be carried in box cars attached to the train.

Preparation of Cars. The health of the animals is the primary consideration, and shipment should be made only in cars that have been properly cleaned, disinfected, and sanded.

Cleaning and disinfection. The necessary and usual cleaning and disinfection of cars must be done by the carrier without expense to the Government.

Additional disinfection. Any additional disinfection that may be ordered will be done at Government expense.

How disinfected. To disinfect a stock car, spray with either chloride of lime (4 per cent) or creolin solution, using 60 cubic centimeters (8 tablespoonsful) to a bucket of water, or else clean thoroughly and whitewash with freshly prepared whitewash.

Sanding. Sanding of cars will be done at Government expense.

Papering. For the better protection of animals in severe weather one side of ordinary stock cars, and also both ends, if not solid, should be closed with heavy paper or slats fastened on the outside of the cars to avoid projecting nails if torn off.

Advance charges. The cost of disinfecting, sanding, or papering done at Government expense will be treated as an advance charge against the bill of lading.

Inspections. Stock cars will be inspected on arrival and also when ready for loading by a veterinary officer, who will advise the consignor as to any sanitary defects to be corrected and will also supervise any additional disinfection that may be ordered.

Prior to loading, all stock cars will be thoroughly inspected by the consignor.

Hayracks and water troughs must be in good repair.

Special attention should be given to the condition and repair of the floor.

Projecting nails must be removed; they can best be detected by looking along the surface.

Loading. The following are the maximum numbers of animals to be placed in a 36-foot car:

Heavy-draft horses	18
Light-draft horses	20
Riding horses	22
Draft mules	21
Pack mules	22

In very hot weather the numbers given above may be reduced by two.

When 40-foot cars are used the number of riding horses and pack mules given above may be increased by three, and the number of heavy-draft horses, light-draft horses, and draft mules may be increased by two.

Animals can be most conveniently loaded through a stockyard chute or from a freight platform level with the floor of the car; when these are not available portable or improvised ramps must be used.

When a ramp is used it must be well supported and have strong sides.

The loading should proceed without noise or confusion, the animals being led quietly to the car door and there turned over to four men, two for each end, who do the loading. They should follow one another promptly, in order to avoid delay, and should be kept moving, so as to reduce the tendency to balk. They should be led in single file by means of halter straps or tie ropes, which should not be removed until the animals are in place in the car. In some cases it may be necessary to blindfold an animal before he can be led into the car. A rope or strap passed in rear of the haunches and drawn forward by a man at each end is often effective in urging an animal into the car. The first animal loaded should be led to one end of the car, the second animal to the other end, and so on, leaving the center of the car for the last animals loaded. Except as prescribed in (4) below, arrange the animals so that alternate ones face in the same direction. The gentler animals should be placed opposite the doors and should therefore be loaded last. Before starting the loading the door on the farther side of the car must be closed and fastened. As soon as the loading is complete the opposite door must also be closed and fastened. Adequate ventilation must, however, be provided for at all times.

Teams of mules should be loaded and should stand in the cars as they are driven together in the team. Mules should be tagged with numbers so as to be quickly identified. Horses used to service together should be loaded together and in the same car. If necessary for identification they should be tagged.

Sick or injured animals should be loaded in a car by themselves and a separate stall built for each animal, if practicable, unless palace stock cars are furnished.

Rest and Feeding Enroute. Shipments will be so handled that animals will not be kept on cars for a period longer than 28 consecutive hours without being unloaded (Act June 29, 1906, 34 Stat. 607), except in the most extreme cases on account of unavoidable delays or through military necessity.

The Government representative in charge of a shipment will sign a release only in these extreme cases.

Animals should be unloaded, fed, watered, and rested after 20 hours, or even less, rather than risk exceeding the 28-hour limit.

In no case will more than 36 consecutive hours be permitted to elapse without unloading for rest and feeding.

Animals will be allowed not less than five consecutive hours of rest at each unloading point.

When representatives of the Bureau of Animal Industry are stationed at points where it is anticipated animals will be fed and watered these representatives should be notified in advance of arrival in order that pens and yards may be disinfected and in readiness to receive the animals.

When no representative of the Bureau of Animal Industry is available a similar notice should be given the railroad authorities. This is particularly important in trainload shipments.

Upon arrival at a feeding station and before unloading the animals the attendant will make a careful inspection of all mangers and water troughs. If found to be in an insanitary condition they will be cleaned and disinfected before using. This cleaning and disinfecting is done by the railroad company without expense to the Government.

Water troughs should be drained before the animals are unloaded, and they should not be allowed free access to water for at least two hours after being fed hay.

Enough hay will be purchased at each feeding point to keep hay constantly before the animals while they are in the corrals.

Each time the animals are loaded four bales of hay will be placed in each car, two bales scattered on either side of the car.

All forage, mangers, and water troughs should be kept under close supervision at the time of feeding and guard will be kept at all times while the animals are in the corrals.

When the stock cars provided are such that the animals can be fed and watered on the train it is unnecessary to unload them for exercise or recuperation unless the weather is very hot and the journey long.

Unloading. The door should not be opened until the car is opposite the unloading point.

Each animal should be led to the door so that his body will be athwart the car before he starts to leave it.

CHAPTER III.

PREVENTION AND FIRST-AID TREATMENT OF DISEASES AND INJURIES.

General Considerations.

Appearances of Health. In health the animal stands with the front feet square and firm on the ground. One hind foot may or may not be resting on the toe. A fore leg is never rested unless there is something wrong with it. The head is held erect, the eyes are wide open, and there is a lively play of the ears.

The *skin* is loose, supple, and easily moved over the structure beneath. The coat is smooth, sleek, and glossy. In cold weather, unless blankets are used, the hair stands upright and the coat becomes heavy and coarse and loses its gloss.

The *pulse* is strong, full, and regular. It beats from 36 to 40 times per minute. The number of beats is increased by exercise or excitement. The pulse is taken by placing the fore or middle finger crosswise on the artery at the edge of the lower jaw, counting the pulsations for half a minute and then multiplying the result by two.

Respiration is free, soft, and noiseless.

Defecation occurs 8 to 10 times in 24 hours, the droppings being fairly well formed, free from offensive odor, and varying in color from yellow to green, according to the nature of the food. The amount of droppings passed in 24 hours varies from 36 to 40 pounds, depending upon the size of the animal and the amount of food given.

Urine is passed several times daily in quantities of a quart or more. It is a thick, yellowish fluid. The quantity passed in 24 hours varies from 3 to 6 quarts. During the act of urination the animal straddles, grunts, and assumes a very awkward position, which must not be mistaken for pain.

Indications of Disease. The most common preliminary indications of disease are partial or total loss of appetite, elevation of temperature, accelerated breathing, listlessness, dejected countenance, stiffness, profuse sweating, nasal discharge, cough, diarrhea, pawing, rolling, lameness, inflamed mucous membranes, reluctance to move, "stary" coat (that is, standing on end), and loss of hair or intense itching.

Inspection of Sick Animals. The best time to inspect animals with a view to detecting the sick is when they are being fed. This is because one of the first and most constant symptoms is impaired appetite. Sick animals in a corral are inclined to stand by themselves. Listen to coughs and make each animal move around a little. On the march animals should be inspected at halts, also after unsaddling in camp.

Administration of Drugs. The following methods of administering drugs internally by other than Veterinary Corps personnel are prescribed:

Drenching. This method is used when large doses of liquids are to be given. The animal is confined in a single stall or by other means; the head elevated by means of a strap passed over the upper jaw in the interdental space and then over a timber above. The free end of the strap is held by an assistant and is not fastened. The medicinal agent should be administered from a long-necked bottle made of glass or hard rubber, preferably the latter, and inserted into the mouth through the interdental space. Only small amounts are given at a time and the animal is allowed to swallow before more is given. The possibility of some of the medicine entering the lungs renders this method hazardous. Its

use is not recommended unless the attendant is thoroughly acquainted with the procedure.

Syringing. This method is safe and should be used ordinarily. The rubber syringe is utilized to introduce the liquid into the back part of the mouth.

Bolling. It is extremely difficult to administer a pill by hand. Ordinarily a twitch is employed and the tongue of the animal is held to one side with the hand. The pill is then thrown well back into the mouth and the tongue released. Swallowing is aided by rubbing the wind pipe. If practicable, a bolling gun should be used for administering a pill.

By way of the rectum (enema). Nonirritating drugs, waters, or food may be administered by injection into the rectum with a long-nozzled syringe or a rubber tube. Oil or grease the end of the nozzle or tube inserted in the rectum. Care must be exercised not to injure the lining of the rectum nor to puncture its wall. Enemas must be copious to be effective.

Nursing. Good nursing is indispensable in the treatment of sick and injured animals. The chief points to consider in nursing are:

Ventilation. Allow plenty of fresh air but protect from draughts. Avoid extremes of temperature, and in the field provide shelter from wind and rain. Utilize grass lots and corrals whenever possible.

Clothing. The amount of clothing must be regulated by the climate. In winter woolen bandages on the legs are useful, and as many as three or four covers may be used. In summer fly sheets are extremely comforting.

Bedding. A good clean bed induces an animal to rest more and produces a soft springing surface for foot cases. It should be shaken up several times daily and be kept free of urine-soaked straw.

Stalls. A roomy box stall, well bedded, should be used whenever possible. Keep a bucket of water in the stall and change the water frequently.

Shoes. The shoes may be removed and the feet leveled if the animal is to remain in a stall for more than a few days.

Convalescent patients should receive just as much exercise as each individual case permits. It must be borne in mind, however, that absolute rest is one of the very best treatments.

Grooming. Animals that are weak and depressed should not be worried with unnecessary grooming. Such animals should be carefully hand rubbed or wisped at least once a day, and their eyes, nostrils, and docks should be wiped out with a sponge or soft cloth. The feet should also be cleaned.

Animals that are only slightly indisposed should be groomed in the usual way.

Animals with tetanus should not be cleaned at all.

Food. Some sick animals retain a good appetite. The principal things to observe in their cases are that they are not overfed, that droppings are kept soft, and that they have plenty of water. Sick animals with impaired appetites require special attention. They often relish a change of diet, a bran mash, steamed oats, chopped alfalfa, grass, roots, and apples. Feed small amounts often, do not allow uneaten portions to remain in front of them, keep mangers and feed boxes clean, induce eating by hand feeding, sprinkle a little sweetened water over the hay and grain. The forced feeding of liquid foods by means of drenches or enema may be used as a last resort.

General Measures for Dealing With Contagious Diseases. Animals should be divided into three groups—affected, suspected, and healthy. The suspected should include all those which have been in contact with the diseased. Attendants, watering, feeding arrangements, and all equipment should be included in this separation and should be kept separate until the outbreak is over. The distance between different groups should, if possible, be sufficiently far to prevent any chance communication between them, or, when military considerations restrict the available space, fencing of some sort should inclose each group. If there is a prevailing wind the healthy should be placed to the windward and the

suspected and affected to the leeward in the order named. Once an animal is placed in the affected group it should remain there until all danger is over and on no account be replaced among the healthy, although it may perhaps have been moved in error in the first instance.

Strict cleanliness of picket lines, equipment, water troughs, feed boxes, and feed bags, and personal cleanliness of attendants is in itself a good safeguard against the spread of disease.

Inspections of all suspected and healthy animals should be carried out daily. In cases where it may be a guide the temperature of suspected animals should be recorded.

Destruction of Animals. To shoot an animal use preferably a pistol. Stand close, with the pistol almost touching the forehead and held at right angles to the head. The head can be brought into a convenient position by offering a handful of grain. Aim at the center of the forehead, well above the level of the eyes, just below the place where the lowest hairs of the forelock grow. The animal will not fall forward, but collapse exactly where it stands.

Disposal of Dead. This is a consideration of importance. All carcasses of animals dying as a result of communicable disease should be burned, if practicable; otherwise buried and covered with quicklime, if available. When buried they should be buried at depth. These are the safest methods of disposal and when practicable should be adopted, as the practice of leaving carcasses about the line of march is a great danger to all troops following. Litter should be burned over ground where discharges from the dead have fallen.

Communicable Diseases.

Glanders-farcy. *Symptoms.* Slight, sticky discharge from the nose, usually from one nostril, a hard lump under the jaw on the same side as the discharge, the lump feeling as if it was stuck onto the jaw and not freely movable. Small sores, called farcy buds, may appear in the nostril or in certain places on the skin. These have the same sticky discharge as seen from the nose and show no inclination to heal. The glanders-farcy ulcer is a small, ragged-edged, angry sore, covered after it bursts with a glutinous, not very copious, discharge. They occur in lines, one below the other. The common situations for them are in the nose, down the inner sides of the legs, and occasionally on the neck and face. In their neighborhood the lymphatic vessels may be seen standing out under the skin like knotted cords, and it is along the course of the cords that the sores occur.

Measures for dealing with an outbreak. The obviously diseased are slaughtered and those that have been in contact with them segregated. Carry out strict disinfection of standings and equipment. A daily inspection of all animals is made, especially of the nose, beneath the jaw, and along the insides of the legs. This disease almost invariably appears in campaign, and all cases with nasal discharge, especially if on one side only, should be regarded with suspicion and placed under observation.

Remedial measures are of no use, and, once a case has been decided to have glanders, it is destroyed and the carcass and equipment burned or buried. The use of the diagnostic agent "mallein" now enables the Veterinary Corps to deal with glanders in a much more satisfactory manner than previously. As a precaution all remounts on joining the service are tested with it to ascertain their freedom from the disease.

Epizootic Lymphangitis. *Symptoms.* Development of small abscesses along the course of the lymphatic vessels and generally down the legs, though they may appear in other parts of the body, which become swollen and are very similar in appearance to the condition described under glanders-farcy. There are certain distinctions, however, among which are the readiness with which the sores heal, the fact that the inflamed condition of the lymphatic and resulting

abscesses always have their original starting point from a wound, and, generally, the absence of fever symptoms. Nevertheless, the symptoms and appearance of both diseases are so similar that very great care should be taken to isolate all cases in the most rigid manner.

Contagious Stomatitis. *Symptoms.* The animal takes its food slowly and chews with great care. There is always more or less slobbering, the saliva hanging from the mouth in long threads. The animal holds the mouth shut. If opened a quantity of saliva spills out. The mucous membranes of the mouth is reddened. The lips and cheeks are often swollen and tender. On the mucous membrane of the lips, gums, tongue, roof of the mouth, and beneath the tongue appear hard, red elevations about the size of a pea, from which in a few days little blisters are formed. Sometimes small abscesses are formed, which break and leave behind small round ulcers. These ulcers and blisters usually heal in five or six days, leaving a white scar. The lump is usually slightly elevated. The disease usually ends in recovery in about two weeks.

Treatments. Feed soft foods and allow plenty of fresh drinking water. Wash out the mouth three times a day with creolin, 1 per cent solution.

Coughs and Colds. *Symptoms.* Discharges from the nostrils and the presence of a cough. The discharge is at first watery, but in the course of a few days it becomes grayish and thicker and then alters to a yellowish color. It runs freely from both nostrils and does not smell. The cough varies somewhat, according to the state of the throat. If the lining is dry and hot, it will be a short, painful one, but when there is much phlegm it is hoarse and longer. In severe colds fever may accompany them, and in such cases additional care should be taken to prevent the chance of the lungs becoming inflamed. What appears to be colds and sore throats may be the beginning of strangles and pneumonia.

Treatment. General attention to comfort. Steam the head to promote free discharge. Rub the throat with a liniment consisting of solution of ammonia 1 part, oil of turpentine 1 part, and olive oil 2 parts. If the cough is very painful only such food as is easily swallowed should be given and the state of the bowels should be carefully attended to

Inflammation of the Lungs. *Symptoms.* The animal will probably be noticed dull and off feed; there may be a history of a cold or cough for a day or two previously and the animal stands still with the fore legs probably a little wide apart, the breathing hurried, the pulse fast, and the temperature high. The lining of the eye will be generally found a brighter red than normal and the bowels are usually constipated. From day to day the changes observed are slight, the pulse remains fast but gets gradually weaker, the breathing remains hurried but may become more shallow, the temperature keeps high, and the appetite is gone or capricious. After a few days the animal begins to get visibly thinner. A slight rusty-colored discharge may be sometimes observed from the nostrils and a painful cough is often a constant accompaniment. When the ribs over the lungs are struck with the tips of the fingers the sound produced is duller than is natural.

Treatments. In this disease, above all others, good nursing is necessary. The great thing is to get the case to eat sufficient food to keep up the strength. Every variety of food may be tried to tempt the animal and small quantities of different sorts should be left in the stable at night. Water should be kept within easy reach and changed whenever fouled. Warm enemas and green food should be frequently administered if the bowels are constipated, but aloes balls should not be given. If the case is weak a daily stimulant is beneficial. After recovery a long rest is essential to allow the lungs to get back their elasticity.

Strangles. *Symptoms.* Fever and swelling beneath the jaw. This swelling is at first hard and diffused, but within a few days it becomes prominent in the center between the jaws and gets soft at the point. It then bursts and generally heals rapidly.

Treatment. Feed the animal well and pay attention to the droppings, keeping them soft. When the abscess has burst or been opened the discharges must be destroyed, as the disease is contagious and its prevention is important. The general rules for dealing with contagious diseases and wounds apply.

Influenza. *Symptoms.* Fever and great lassitude, with generally a highly colored lining to the eye (pink eye), which may also be considerably swollen. When the disease attacks the chest and air passages there will be discharge from the eyes and nose, resembling that described under catarrh, and in severe cases inflammation of the lungs may follow. In another form there may be rapid swelling of the legs. Occasionally the bowels are affected and there is diarrhea. It is easily communicated from one animal to another and the usual precautions for dealing with contagious diseases should be observed.

Treatment. In this disease the weakness of the patient is great and the wasting rapid, while the appetite is often wanting, or at any rate capricious. Nursing is of great importance and every endeavor should be made to get the patient to eat in order to keep up the strength. The body should be clothed and the legs bandaged warmly, while, if stabled, drafts should be avoided. After recovery ample rest should be given to recover the strength before being put to work again.

Surra. Surra is a tropical disease caused by a parasite in the blood and spread by flies. *Symptoms.* The symptoms are fever, which appears and disappears or gets less every few days; dark red spots on the lining of the eye and nose, which are often yellowish; the appearance of nettle rash over the body; and, later on, swelling of the legs and lower surfaces of the body. The animal gets thin and weak and usually dies in about six weeks from the time it was noticed to be ill.

Treatment. The disease is incurable. Immediately after the diagnosis of surra is established the animal should be removed from others and destroyed. Suspicious cases must be isolated and so handled as to be inaccessible to flies.

Anthrax. *Symptoms.* The general symptoms are high fever, want of appetite, rapidly increasing swellings in various parts of the body, spotting and purple coloring of the lining of the eye and nose, bloody discharges from the nose and sometimes the bowels, and rapid death. The patient may be found in many cases with swelling of the throat, which rapidly increases. This swelling, which is common in all cases of the disease, is rather soft and doughy to the feel. The finger pressed into it will leave a dent. It may occur in the chest or belly—when chest, symptoms of colicky pains will be shown. Later a rusty or bloody discharge may be seen to run from the nostrils. Death occurs in about 24 to 48 hours.

Treatment. Curative measures are usually of no avail. Upon discovery of the first case in a command the rest should be immunized. As the disease is usually introduced by the food, this should be changed when possible. There is little danger of animals getting it from one another if strict precautions are observed. These are as follows; Separation as soon as found ill and burning of all equipment, droppings, feed, etc. In stables, walls should be scorched with a flame as high up as the animal can reach its nose, scraped, and washed with a strong disinfectant. The top layer of earth should be removed from earthen standings and burned. Carcasses should be burned whole.

Mange. *Symptoms.* In both cases the common situation for the disease to be first noticed are on the head, withers, and back, and sometimes but less frequently the quarters. In the dry form small pimples may be felt about as big as a pin's head and from these the hair falls, leaving a small pea-sized bald spot. In the wet form a moist, rapidly increasing patch will be seen, from which the hair falls, and in both cases there is severe itching. If the place be gently scratched the animal will smack or nibble with his lips and lean and rub against

the hand. When being groomed they will lean heavily against the brush and when loose they will scrub against anything rough with such violence as to make the skin bleed. Mange is a continual source of trouble in the field.

Treatment. Segregation and strict disinfection. Clip off the hair and burn it. Dress the case thoroughly, if possible, all over with a parasiticide. Keep the dressing on for several days and rub it in lightly daily with the hand. Then wash well with soap and water and keep under observation for at least three weeks. Keep the animal well fed. All equipment, blankets, etc., should be soaked in a disinfectant before being used again. Daily inspections of all animals of a unit which has many cases of mange are imperative and all long coats should be clipped to allow of easier examination.

Tetanus (Lockjaw). *Symptoms.* The symptoms of tetanus are stiffness and constant spasms of the muscles of the jaws (lockjaw), neck, and back. The other muscles of the body may be affected, but it is most noticeable in those mentioned. The jaws are fixed, the tail is drawn to one side, and quivers. If the head is lifted up the haw or third eyelid appears and the animal is very easily startled. The mouth is often seen covered with food from the patient's effort to eat, and this may be the first thing to draw attention to the case.

Treatment. Keep the animal as quiet as possible, separated from others, and away from all noise; give a noiseless bed which is easy to walk about on, such as sand or old short bedding. Feed on plenty of boiled, sloppy food which the animal can suck down. Give at the outset a dose of physic and, having plenty of food and water within easy reach, do not allow anyone near the animal for 12 hours at a time. Absolute quiet is the best treatment. In all cases look for wounds and thoroughly cleanse and treat them with antiseptics. Cases which live over 10 days generally recover if carefully nursed.

Tinea (Ringworm). *Symptoms.* Round bald patches covered with grayish scales, usually about the size of a quarter, caused by a fungus growth at the root of the hairs. It is contagious but not always serious. Clip off the hair around the patch and dress with iodine (tincture or ointment), both over and around the spot.

Noncommunicable Diseases.

General. There are many noncommunicable diseases from which animals suffer. Only the more common ailments, with which the personnel of mounted commands should be familiar, will be mentioned in this manual. In many cases Veterinary Corps personnel will not be available and minor ills may be cured by a little knowledge of their symptoms, causes, and principles of treatment.

Spasmodic Colic. Gripes. *Symptoms.* The suffering is very violent but of short duration; the spasms appear suddenly and disappear with the same rapidity. While the spasm lasts the animal paws stamps, looks around at his flanks, lies down and rolls, and if the pain is very severe sweats profusely. During the attack a few pellets of dung may be passed and attempts to urinate are frequently made.

Causes. Usually caused by indigestible food, change of food, working hard after a full feed, watering immediately after feeding, feeding or watering exhausted animals, overfeeding, eating too much green feed.

Treatment. Place the animal in a well-bedded box stall. If such a stall is not available bed down a section of the picket line and tie with just enough rope to allow the animal to lie down comfortably. In ordinary cases give one aloes ball or the following drench: Raw linseed oil, 1 pint; turpentine, 1 ounce; if relief is not obtained repeat the drench in one hour. In case of fecal obstruction or constipation give 1 pint of raw linseed oil daily until the animal purges. Induce the animal to drink but withhold food until the acute symptoms subside.

Flatulent Colic. *Symptoms.* The rapid swelling of the belly is the characteristic symptom. The abdomen is distended, the pain is not as severe as in

spasmodic colic, but more constant. The animal paws, looks at his sides, and appears to be in great pain.

Causes. Much the same as spasmodic colic. Windsuckers are very likely to have this trouble.

Treatment. Act quickly. Prevent the animal from rolling. Give the drench prescribed for spasmodic colic. If not relieved after the second dose administer one aloes ball. Coldwater enemas are sometimes effective. Rub the belly.

Diarrhea. *Symptoms.* Purging, the fecal matter being semifluid, of a dirty brown color, without offensive odor, or clay-colored and fetid. If the condition continues long the animal loses flesh and appetite is wanting.

Causes. Irregular feeding, bad food, change of diet, worms, chill, nervousness.

Treatment. When the purging arises from the presence of some offending matter in the intestinal canal (sand, worms, undigested food), give 1½ pints of linseed oil. If the purging arises from no apparent cause, or if the bowels do not regain their normal function after the action of the oil has subsided give astringents, such as tannic acid, 1 to 2 drams. Do not stop diarrhea too suddenly.

Staggers. *Symptoms.* The animal may stop very suddenly and shake his head or stand quietly braced on his legs then stagger, make a plunge, and fall. The eyes are staring, breathing snoring and hurried, nostrils widely dilated; there may be convulsions.

Causes. The usual causes are pressure of the collar or breast harness on the large vessels of the neck, which causes a congestion of the brain, or the effect of sun combined with work.

Treatment. Prompt removal of all mechanical obstruction to the circulation. Shade from the sun; apply cold water to the head and spine; keep the animal quiet. When recovered give a purgative (1 pint of raw linseed oil or one aloes ball) and feed on a soft diet.

Sunstroke and Heat Stroke. *Symptoms.* Sunstroke is manifested suddenly; the animal stops, drops his head, begins to stagger, the breathing is marked by great snoring, the pulse is slow and irregular, cold sweats break out in patches on the surface of the body, and the animal often dies without recovering consciousness.

In heat stroke the animal usually requires urging for some time previous to the appearance of any other symptom. Generally perspiration is checked; he becomes weak in his gait, the breathing becomes hurried, the eyes watery and bloodshot, nostrils dilated and highly reddened to a dark-purple color, the heart is rapid and weak; frequently the animal becomes unconscious.

Causes. Sunstroke is produced by the rays of the sun falling directly on the head. Heat stroke is caused by the overheating of the whole body or by excessive exertion. To prevent, carefully watch for symptoms on very hot days and at first appearance stop work and move animal to shade.

Treatment. If possible, the animal should be placed in a cool shady spot or in water and cold water poured over the body, the head, and the neck. Give enemas of cold water and rub the body vigorously and often. When the animal is able to swallow, 2 ounces of aromatic spirits of ammonia should be given and repeated in an hour. In the cool of the evening or during the night the animal may be moved, if necessary. It should, however, be kept in a cool place during the heat of the day until recovery is apparent.

Exhaustion. *Symptoms.* On reaching the journey's end the animal may lie down and refuse to feed, though it may drink unusual quantities of water. Sometimes there is considerable sweating, but the body will be found cold and the pulse feeble.

Causes. Excessive or prolonged heavy work.

Treatment. Clothe warmly and give 2 ounces of aromatic spirits of ammonia. If possible, give a warm bran mash instead of the usual feed.

Spasms of the Diaphragm (Thumps). *Symptoms.* Exhaustion with spasmodic jerking exhibited in the flanks.

Causes. Overwork or fast work during hot weather.

Treatment. Absolute rest and fresh air without drafts. Give the following: Aromatic spirits of ammonia, 2 ounces; water, 1 pint.

Azoturia. *Symptoms.* The attack usually comes suddenly and within 20 minutes after leaving the stable. The animal becomes dull, goes slowly, and stiffens over the hind quarters. The muscles of the croup and loins become very tense, greatly swollen and sensitive to touch the animal frequently refuses to move the hind legs or drags them. Breathing accelerated, profuse sweat, great nervousness, urine red to coffee color. If the animal is continued to exercise or an attempt is made to return him to stable, he invariably goes down and his chances of recovery are remote.

Causes. Enforced idleness on full feed for animals accustomed to regular work, or work following enforced idleness for animals in excellent condition when no change in the diet has taken place during the rest period. When animals in excellent state of flesh and accustomed to regular daily work are rested for one or more days they must not be fed the full ration; in lieu of one feed, it is desirable that they be given a bran mash as a laxative.

Treatment. Stop the animal immediately when the first symptoms are observed. Remove the saddle or harness at once and cover with three or four blankets. Keep the animal standing, if possible; if not, provide a good bed. Heat some oats or common salt, place in a sack and spread over the loins to relieve the pain. If hot water is available a hot blanket wrung out, placed over the back and loins, and covered with dry blankets is very beneficial. This should be changed often. After a few hours the average case can be moved slowly to the stable, provided the distance is not too great. At this time he should be given a purgative (aloes ball) and be fed on bran mashes, grass, and hay for a few days.

Scratches. *Symptoms.* Occurs on the back of the pasterns or bulbs of the heels. The skin is hot, painful, and more or less swollen. It may crack and little blisters may form, followed by an oily fetid exudate. There is usually lameness. Hair on the affected part falls out.

Causes. Filthy stables; standing in dung, urine, and slush. The washing of the lower limbs and not drying them thoroughly also leaving mud on the legs, especially if it contains irritating substances such as alkali, are contributing factors.

Treatment. Rest the animal, give laxative feed, thoroughly cleanse the parts, keep dry and free from dirt. Apply a white lotion pack twice daily. When the parts become dry, hard, and scabby an ointment made of 1 part of zinc oxide and 10 parts of lanolin or cosmoline may be applied twice daily. When the parts are moist and oily dry dressings such as boric acid, either powdered on loosely or held in place by a piece of cotton and a bandage, may be used.

Lice. *Symptoms and causes.* Usually found on neglected animals. The insect is one-tenth of an inch in length and may be readily detected on looking carefully into the coat. Great itching, chiefly at the roots of mane and tail.

Treatment. Clip the animal, if practicable, and burn the hair where it falls. Wash the skin with a creolin solution not over 2 per cent in strength.

Tick. *Symptoms.* This insect imbeds its head in the animal's skin. If pulled out the head remains in the skin and festers. Certain localities abound in ticks; animals grazing in such places are very likely to become infested.

Treatment. Touch the tick with iodine or turpentine. If very numerous wash with a 2 per cent solution of creolin or lysol.

Wounds.

Classification. Wounds may, for the purpose of description, be divided into—

Incised, wounds or cuts.
Lacerated, wounds or tears.
Punctured, wounds or holes.

Treatment of Wounds. The great principle in the successful treatment of wounds may be summed up in the word cleanliness. Cleanliness of the wound itself, of the dressings, and the dresser are of the greatest importance.

Bleeding. Stoppage of bleeding is the first point to be attended to if it is serious. The readiest means of stopping bleeding is pressure, which may be carried out by tight bandaging above and below the wound or by placing a pad on the wound and bandaging over it. For ordinary wounds a simple pad and bandage is usually sufficient to control the flow. If there happens to be a large vessel cut and the end exposed it should be tied around with clean thread which has been soaked in antiseptic.

Cleaning Wounds. When the bleeding has stopped cut the hair from the edges of the wound and remove all dirt, clots of blood, splinters, and foreign bodies of every kind. This may be done by carefully syringing the parts with clean warm water or a warm antiseptic solution. Foreign bodies may be removed with forceps or by pressing small pieces of cotton soaked in an antiseptic solution gently over the surface of the wound. Punctured wounds (except those around joints) should be probed to ascertain if any foreign bodies are in the channel.

Closing Wounds. Sutures and bandages are used for this purpose, but no wound that has been dirty must ever be entirely closed. Suturing (sewing up wounds) is usually dispensed with and when necessary should be done by a veterinary surgeon.

Drainage. In all wounds drainage is necessary for the removal of pus that would otherwise accumulate in them. The escape of such material must be provided for at the lowest part of the wound.

Dressings. Wounds that have been sutured and also wounds that are to be treated without suturing should be dried carefully with gauze or cotton, treated with an antiseptic, covered with dry gauze or cotton, and a bandage applied. Or cotton soaked in an antiseptic may be put on and held in position by a bandage, care being taken to avoid undue pressure.

If the location will not permit bandaging the injured parts may be treated with an antiseptic and covered with a clean piece of cloth or gunny sack, the inside of which may be lined with a piece of gauze large enough to cover the wound.

Rest and Restraint. This will depend entirely upon the nature and extent of the wound. If the injury is slight the animal may continue at work; otherwise he may be kept in a box stall, crosstied, or subjected to some other form of restraint.

Aftercare. All wounds should be kept dry and dressings should be changed only often enough to keep the wound clean. As little washing as possible should be done, and the parts should be sopped instead of rubbed. After cleaning and drying a new dressing should be applied.

Flies. The healing of wounds that can not be covered is sometimes retarded by the presence of flies. Such wounds may be painted once or twice daily with the following preparation: Creolin, one-half ounce; oil of tar, or linseed, 1 ounce; oil, olive, 10 ounces. Mix.

Maggots and Screw Worms. Wounds sometimes get fly-blown and maggots appear. Their presence is recognized by a thin bloody discharge from the wound and the red, angry appearance of its edges. If the bottom of the wound is carefully examined movement of the worms may be seen.

With forceps pick out all the worms that are visible and wipe out the cavity with a swab of cotton that has been saturated with tincture of iodine. Turpentine (1 part) and cottonseed or linseed oil (3 parts) may be used in the same

way. Chloroform, if available, is the most valuable agent. Inject into wounds with a syringe.

Excessive Granulations (Proud Flesh). In sluggish, slow-healing wounds small rounded fleshy masses, which protrude beyond the edges of the wound, are often formed. These fleshy masses are called proud flesh. The growth should be kept down by the use of burnt alum or caustics.

Injuries.

Contusions. Bruises when the skin is unbroken are not, as a rule, serious. On the legs, especially on the tendons, they may cause lameness. Fomentation will relieve the pain and probably enable the animal to continue work, though the accompanying swelling may not subside for some time. On the back and in any position where they are liable to be pressed by the saddle, harness, or pack they will rapidly become worse unless relieved of the pressure. Beyond this they require no further treatment than a cold-water application.

Injuries to the Eyes. Eye injuries are usually due to blows or to small objects getting stuck on the front of the eyeball. The eye turns milky, white, is closed, and weeps. Keep a cloth over it to prevent light entering. Oil below the eye to prevent tears making the skin sore and apply a weak boric-acid solution. To remove anything from the front of the eye wipe it firmly with a smooth cloth over the finger. Foreign bodies may be removed by carefully washing out the eye with clear water or the careful use of a tightly rolled swab of cotton or gauze.

Treads and Overreaches. *Symptoms.* The overreach is caused by the animal striking its own fore leg with the hind foot, whereas the tread may be inflicted by another animal. Overreaches occur either above the fetlock or the fore leg or on the side of the coronet and back of the heels. Treads are generally found on the outside of the coronets and sometimes above the fetlock in the hind legs. In these wounds there is generally an underlip of skin hanging from it.

Treatment. In bandaging care should be taken to retain the lip in its proper position, where it will heal; but should it be hanging by a small neck of skin only, cut it off. Apply antiseptics. As a rule it will be found possible to bandage these injuries, which should be done from below upward, in order to keep the cut ends in position, sufficiently thick pads of cotton being placed under the bandages to prevent any undue pressure.

Sprains. *Symptoms.* Swelling of the part with pain on pressure. Unless these are present, the cause of lameness should be sought elsewhere. In addition, the part is hot, compared with the rest of the leg. Lameness is always present.

Treatment. Sprains of back tendons, if taken at once, may have a pressure bandage put on them. This is applied as follows: A thick pillow of cotton is placed evenly around the leg, care being taken to have it so thick that the subsequent pressure of the bandage will not injure the skin. Over this is wound, as tightly and evenly as possible, an ordinary bandage. It should exert an even firm pressure over the whole injured surface and extend well above and below it. The padding should also project at each end to insure that there is no cutting of the skin by the edges of the bandage. When this becomes loose it shows that the swelling is reduced and should be replaced. This is a simple and effective way of treating sprains when taken early and properly applied, but any treatment of severe sprains necessitates long rest from work.

Stifle Slip, or Dislocation of the Stifle. *Symptoms.* This most frequently occurs among very young animals or those out of condition and is due to slipping or struggling to pull a load. The leg is dragged behind with the front of the foot on the ground and can not be bent or brought forward. There is an enlargement on the outside of the stifle, caused by the displaced bone.

Treatment. Put a rope around the pastern, pull the foot forward, backing

the animal at the same time, and push the displaced bone forward and slightly downward into place. When replaced tie the foot forward for 24 hours either to a surcingle or a rope passed round the neck.

Heel Galls or Rope Burns from getting the heels over the picket line or tie rope may occur in both fore and hind feet. They should be cleaned and treated antiseptically. If much inflamed a warm-water bandage will give relief from the pain. The skin should be kept supple by the use of ointments, with daily exercise after the acute pain has subsided. Lameness is usually great at first, but diminishes with exercise. They may be prevented by attention to the length of the tie rope.

Injuries to the Feet.

Pricks in Shoeing. *Symptoms.* Lameness may be in evidence at once, but it usually develops slowly and does not appear for several days. Heat is present in the foot.

Causes. Nails driven into the soft structures, causing immediate lameness, or driven too close, causing a bulging of the inner layer of horn and pressure on the soft structures.

Treatment. Remove the nail and disinfect the nail hole with iodine.

Pus in the Foot. *Symptoms.* The pain caused by the pus in the foot is intense, the animal is extremely lame, and the foot is hot. Unless the pus is discovered and drained out it generally works up and out at the coronet. In this case the resulting sore is called "quittor." The quantity of pus may be trifling. The color is grayish.

Causes. May result from any penetrating injury. It is a common result of a puncture of the sole or frog made by dirty objects.

Treatment. A good opening should be made in the horn to admit of a free discharge of pus and the wound syringed with antiseptics, care being taken to keep it open until all discharge has ceased. Dirt should be excluded by a cotton pad and boot on the foot. To retain dressings on the sole of the foot a piece of tin may be slipped under the shoe and pressed flat. This will be found useful when boots are not available and the injury is to the sole or frog.

Bruises of the Sole. *Symptoms.* Pain on pressure on the sole and a red stain on the horn caused by blood from the bruised fleshy sole soaking through.

Causes. Caused by work over stony ground and failure to remove stones lodged in the feet.

Treatment. A leather sole nailed on beneath the shoe is usually sufficient to give relief. It is important not to pare out the sole.

Corns. *Symptoms.* Lameness may or may not be present. The horn is discolored and where bruises and inflammation are severe great lameness is shown and suppuration may occur.

Causes. Undue pressure at the angle of the heel between the wall and the bar. Contributing causes are: Dry feet, contraction of the quarters and heels, heels taken down too low, continued use of calked shoes, lack of frog pressure, excessive concussion or pressure of the shoe on the sole, and unlevel shoeing.

Treatment. In case of a dry corn with no pronounced contraction of the heels, shoe with the bar shoe, cutting away the bearing surface of the wall, and removing the pressure from a point just in front of the discolored horn, back to and including the buttress. Pack the foot with oakum and tar and cover with a leather pad.

Where the bruise has been so severe that pus has gathered in the heel preliminary treatment should be as indicated above for pus in the foot. After suppuration has ceased treat as described for a dry corn.

Sand Cracks. *Symptoms.* A fissure or crack in the wall at the toe or quarter. The fissure may be shallow and not cause lameness, or it may be a deep one, which extends through the thickness of the wall and causes lameness, frequently with hemorrhage.

Causes. Excessive dryness of the hoof, causing brittleness, lack of frog pressure, contracted heels, long toes, heavy shoes, large nails, and nails set too far back.

Treatment. The first step is to remove the shoe and soften the horn by poultices or by standing in warm or cold water for a few days. After this, clean out the crack and cut away the hard overlapping edges of the horn. If for a quarter crack, trim away the bearing surface of the wall from a point one-half inch in front of the crack back to and including the buttress, so that the affected quarter does not come in contact with the shoe; shoe with a bar shoe providing considerable frog pressure. Keep the foot soft and elastic by applying tar, oakum, and a leather pad. Keep the wall surface soft, especially over the crack, by daily applications of tar and oil. Rest the animal, if possible.

In the case of a toe crack the operation is the same. In shoeing, the wall is cut away at the toe. A bar shoe rolled at the toe and with a clip on each side of the crack is recommended.

Dry Feet. *Symptoms.* A hard, dry, and inelastic condition of the horn. The first symptom of lack of moisture in the hoof is evidenced by the horny frog.

Causes. Lack of exercise, lack of frog pressure, dry weather, and rasping away the outside covering of the hoof (periople).

Treatment. Soften the feet by foot baths and apply an oily dressing to the wall surface. Pack the cavity between the branches of the shoe with white rock or wet clay two or three times a week. An excellent oil dressing for dry, brittle, or contracted feet is made of the following: Creolin, 4 ounces; pine tar, 4 ounces; raw linseed oil, 24 ounces. Mix and apply to both wall and sole twice a week. When the animal is shod the foot should be prepared and a coating of the dressing applied to the sole before nailing on the shoe.

Contraction of Quarters and Heels. *Symptoms.* The contracted foot is easily recognized from its appearance. The quarters, and especially the heels, are narrower and higher than in nature and there is little or no frog pressure. The foot may resemble a mule's foot more than that of a horse. The frog atrophies and is often affected with thrush.

Causes. Dry feet, thrush, cutting of the bars, opening up the heels, cutting away the horny frog, continued use of heel calks on open shoes, and allowing the shoes to remain on the feet too long a time.

Treatment. Soften the feet as prescribed for dry feet.

If the contraction is not pronounced, if the horny frog is in a healthy condition and of sufficient size to come in contact with a bar shoe, use the bar shoe well rolled at the toe, pack the feet with oakum and tar, and cover with a leather pad. Alternate the packing at each reshoeing—that is, pack the shoe at one shoeing and omit at the next.

If the contraction is pronounced the following method may be used: Remove the wall proper from the affected quarter or quarters, if both are contracted, from a point near the bend or widest part of the hoof, back to and including the buttress and from the coronary band to the lower border of the hoof. The wall proper should be removed with the rasp and knife, being careful not to draw blood. Shoe with a bar shoe and pack the foot with pine tar and oakum. Dress the cut surface of the wall with pine tar.

Thrush. *Symptoms.* In the early stages there is simply increased moisture in the cleft of the frog, accompanied by an offensive odor. Gradually the frog becomes softer and the odor more marked. If not treated the cleft deepens, the horn spreads and becomes underrun and loosened, and the sensitive structures may be exposed. Lameness may be present.

Causes. Dirt, wet and neglect, from muddy and filthy picket lines, corrals, and stable floors. Thrush is particularly liable to occur in animals shod in such a way that insufficient frog pressure on the ground results or whose frogs have been cut away in shoeing. The disease is largely preventable.

Treatment. Pare away all those particles of the frog and touch the soft spots with iodine. When the iodine is dry cover with a pine-tar dressing. Repeat the treatment daily until cured. If the feet are contracted shoe as described for contraction of the quarter and heels.

Loose Wall or Seedy Toe. *Symptoms.* A soft, flaky condition of the horn, lameness usually being absent. If there is marked crumbling of the horn with the formation of a cavity between the hoof and the sensitive structures underneath, lameness may result from injury to the sensitive structures.

Causes. Laminitis, with structural changes in the feet, nail pricks in shoeing, stepping on sharp objects, injuries to the wall from blows, pressure from heavy, deep-seated clips, and excessive moisture.

Treatment. Remove the unsound horn, clean the cavity, protect the foot by means of a leather pad, and apply a dressing of tar and oakum. Use the bar shoe well rolled at the toe. No nails should be driven in the diseased part, but side clips should be used, care being exercised that they bear only on the healthy horn.

Lameness.

General. Lameness may best be detected at the trot. The animal should be led straight away from and back toward the person examining it. When an animal is lame it takes as much weight as possible off the injured or painful leg and places it on the opposite one. The extra weight placed on the sound side gives an uneven appearance to the action. If lame in a fore leg the animal will be seen to bob its head every time the sound foot comes to the ground. If lame behind, the hock of the sound leg comes higher and dips lower than that of the lame one. In each case the bobbing of the head and the dipping of the hock is caused by the extra weight placed on the sound side. Animals lame in both fore and hind legs take short strides with both, potter along instead of striding out. Lameness is very difficult to detect when it is not severe. An animal very lame in one fore leg appears to be lame in the diagonal hind leg also.

The majority of causes of lameness occur at or below the knee and hock. The foot is the most common seat. Lameness in the shoulder is comparatively rare. In all cases where no apparent or sufficient cause can be detected the foot should be thoroughly examined.

Sidebones. *Symptoms.* A hard, unyielding condition of the lateral cartilages is noticed at the coronet over the heels. On soft footing the horse rarely goes lame, but the stride is shortened and the natural freedom and assurance in planting the foot are absent. On hard footing the horse frequently shows lameness, accompanied by fever in the feet.

Causes. Contracted heels, concussion, or unbalanced feet.

Treatment. For saddle or pack animals use one of the following methods: If the heels are not badly contracted, shoe with a plain shoe, well rolled at the toe, and use a pad. The pad may cover the entire sole, with the packing of tar and oakum underneath, or it may be placed between the shoe and the bearing surface of the foot only. Rubber sheeting one-eighth inch thick makes a better pad than leather for use between the shoe and the bearing surface of the foot. If the contraction of the heels is pronounced, shoe with the bevel-edged shoe, which forces the heels and quarters outward and relieves the pressure on the affected part.

For draft animals shoe with the Memphis bar, or the 4-calked shoe. The feet may also be packed with tar and oakum.

Coffin-Joint Lameness or Navicular Trouble. *Symptoms.* Lameness slight at first, but increasing in severity. While traveling, the affected leg takes a shorter step than the others and the toe strikes the ground before the heel. In some cases the lameness may disappear for a day or two. When resting, the animal points the toe, and if lame in both feet the legs are advanced and the feet

rested alternately. The shoe shows abnormal wear as far back as the second or third nail hole. Usually affects the front feet only. Heat over the coffin joint, tenderness on pressure.

Causes. Contraction of the heels, excessive concussion, long toes, feet broken back, slipping, stepping on a rolling stone, or stepping into a hole.

Treatment. Give the animal rest and reduce the inflammation by the use of foot baths. After the inflammation has been reduced the animal may be shod, using one of the following methods:

If the injury was caused by stepping on a rolling stone or stepping in a hole, shoe with the 4-calked open shoe if the animal is to be used on hard footing, or with the Memphis bar if the animal is to be used on soft footing. Pack the feet with tar and oakum and cover with a leather pad. If it is not desired to pack the feet, use a pad of rubber or leather between the shoe and the bearing surface of the foot.

If the injury was caused by concussion from continued use over hard roads or from continued use of open calked shoes, it is usually accompanied by pronounced contraction of the heels and practical absence of the horny frog. Shoe with the bevel-edged shoe with a rocker toe. The horn structures must be kept soft as prescribed for dry feet.

Laminitis (Founder). *Symptoms.* Sudden and intense lameness, which may be ushered in by a chill. Usually the fore feet are affected, although occasionally all four are involved. When the fore feet are affected they are placed far in advance of the body and the hind feet are placed well forward under the belly to take all weight possible off the fore feet. The affected feet are very hot. The pulse and respiration are greatly accelerated and the temperature may reach 105° or more.

Causes. The most common are: Long-continued fast work on hard roads; overexertion; exhaustion; rapid changes of temperature; the eating of various improper foods, such as musty hay, grain, etc.; and the drinking of cold water when the animal is overheated.

Treatment. Remove the shoes from the affected feet and place the animal in a well-bedded box stall. Cover the affected feet and legs as high as the knees and hocks with several layers of burlap and keep saturated with cold water. If running water is available, place the animal in it and allow him to stand for 24 or 36 hours. In this case the shoes need not be removed. Laxative diet is indicated. Give one aloes ball, or preferably 1 pint of raw linseed oil as a drench. Feed bran mashes and a little hay. Cases that are not cured in four to five days are liable to develop the disease in chronic form. Chronic laminitis is practically incurable. Early treatment is an important factor.

Following a case of a mild attack of laminitis, shoe with the plain bar or open shoe, preferably the bar. Avoid sole pressure. The shoe should be thinned from the first nail hole on either side to the point of the toe and from the fourth nail hole to the point of the heel, making a form of rocker-motion shoe. Pack the feet with tar and oakum and cover with a leather pad.

Where separation of the sensitive and horny structures has taken place, evidenced by a dropped sole, use the 4-calked bar or open shoe with a thin sheet of metal covering and in contact with the sole. Use tar and oakum in sufficient quantity to furnish a fair padding between the sheet metal and the horny sole. Avoid sole pressure by the shoes.

Sore Backs.

General. Sore backs are probably the greatest cause of disability among Cavalry mounts. It is seldom that sore backs can not be prevented.

Causes. The common causes are: Improper saddling, poorly fitting saddles, dirty or improperly folded saddle blankets, careless riding such as lounging in the saddle, unevenly placed loads, and poor conformation.

Prevention. The individual rider must be held strictly responsible that the adjustment of his saddle, arms, and pack is correct; that his blanket is clean and accurately folded; and that he reports at once to his immediate superior the slightest injury of any kind discovered on the back of his animal. Officers and noncommissioned officers must be unremitting in their efforts to prevent men from slouching in the saddle. Riders must sit erect in the saddle at all times. Riding on the cantle or standing in one stirrup is sure to bring saddle sores.

Poor conformation is the hardest cause to overcome. However, intelligent application of the principles of correct saddling can usually overcome this cause. On field service riding animals lose flesh, which results in poor fitting saddles. Small pads made from old blankets or strips of felt inserted under the covering of the bags take the place of lost flesh.

Treatment. Ascertain and remove the cause, if possible. In fresh cases, where the skin is not broken, apply cold irrigations or baths with gentle hand rubbing. This should be followed by the application of packs saturated and kept wet with cold water and held in position by means of a surcingle or bandage. The pad may be of oakum or it may be made by folding a gunny sack three or four times.

Injuries to the withers and ridge of the spine should be irrigated or bathed with cold water but without pressure and without massage.

Slight galls, chafes, or abrasions are treated with white lotion or powdered boric acid.

When sitfasts appear apply warm baths or warm poultices until the dead skin becomes loose. Then remove all dead and bruised tissue with the forceps and a knife, after which the injury is treated with iodine and boric acid. Sitfasts are patches of dry dead skin and may involve deeper tissues. They are caused by continuous pressure of the saddle, cinch, or collar.

If it is necessary to continue to ride an animal with a sore back means must be devised to relieve pressure from the affected part.

TABLES OF ORGANIZATION

Table I. Cavalry Regiment.

Personnel	Specialist ratings (class)	Regimental hq. and band (a)	Headquarters troop	Machine gun troop	Three squadrons	Total regiment	Attached medical department.	Attached chaplain.	Aggregate
Colonels		1				1			1
Lieutenant colonels		1				1			1
Majors		1			3	4	1		5
Captains		3	1	1	15	20	2		22
First lieutenants		1	2	2	15	20	(2v)4(1d	1	25
Second lieutenants			1	4	18	23			23
Total commissioned		7	4	7	51	69	7	1	77
Warrant officers		1				1			1
Master sergeants			2			2			2
First sergeants			1	1	6	8			8
Technical sergeants		1	5			6	1		7
Staff sergeants		1	9			10	1v		11
Sergeants		4	13	15	72	104	4(2v)		108
Corporals		2	14	19	96	131			131
Privates 1st class and privates, incl.		20	92	134	822	1068	29(11v)		
Specialists	2nd		(5)			(5)			
Specialists	3rd		(9)			(9)			
Specialists	4th	(8)	(12)	(6)	(30)	(56)			
Specialists	5th	(7)	(9)	(5)	(24)	(45)	(5)b		
Specialists	6th	(5)	(25)	(27)	(114)	(171)	(3)c		
Privates basic			(32)	(96)	(654)	(782)	(21)c		
Total enlisted		28	136	169	996	1329	35		1364
Aggregate		36	140	176	1047	1399	42	1	1442
Horses		14	146	236	1200	1596	48f		1644
Mules			24	24	96	144	4		148
Cars, motor 5 passenger			1			1			1
Cars, motor, cross country			5	4		9			9
Motorcycle with side car							1		1
Trucks, cargo, 1½ ton			3			3			3
Wagons, escort (combat)			1	2	6	9			9
Wagons, escort (forage and pioneer)			2	2	6	10			10
Wagons, escort (ration and baggage)			3	2	12	17	1g		18
Wagons, spring			1	1	6	8	4		12
Demolition outfit			3			3			3
Pioneer outfit			3			3			3
Radio sets			4			4			4
Guns, machine, cal. 30				16		16			16
Guns, 37 mm				3		3			3
Pistols		36	140	176	1047	1399			1399
Rifles			73	93	882	1048			1048
Rifles, machine					48	48			48
Sabers		7	32		813	852			852

Notes: a. The band is a separate organization commanded by the regimental adjutant. It may be attached to any unit of the regiment for administration, mess and supply. In garrison or permanent camp it may be mounted for ceremonies, etc., on headquarters troop mounts. In the field it is normally transported in trucks.

b. 4 technicians and 1 horseshoer, basic.

c. 1 motorcyclist and 2 wagoners.

d. Dental.

e. Includes:
2 wagoners and 2 drivers.

f. Includes:
38 riding.
8 draft spring wagon).
2 pack (2 squadron veterinary aid stations).

g. Ration, baggage and forage for medical department.

v. Veterinary.

The regiment includes:
372 privates 1st class.
696 privates.

The equipment listed herein is tentative.

Approved April, 1928—Effective July 1, 1929.

Table II. Squadron, Cavalry Regiment.

Personnel	Specialist ratings (Class)	Squadron hq.	Two troops	Total
Majors		1		1
Captains		1a	4	5
First lieutenants		1b	4	5
Second lieutenants			6	6
Total commissioned		3	14	17
First sergeant			2	2
Sergeants			24	24
Corporals			32	32
Privates 1st class and privates, incl.			274	274c
Specialists	4th		(10)	
Specialists	5th		(8)	
Specialists	6th		(38)	
Privates basic			(218)	
Total enlisted		e	332	332
Aggregate		3	346	349
Horses		6	394	400f
Mules			32	32
Wagons, escort (combat)			2	2
Wagons, escort (forage and pioneer)			2	2
Wagons, escort (ration and baggage)			4	4
Wagons, spring			2	2
Pistols		3	346	349
Rifles			294	294
Rifles, machine			16	16
Sabers		3	268	271

Notes: a. Adjutant, intelligence officer and plans and training officer.
b. Supply officer.
c. Includes:
92 privates 1st class.
182 privates.
e. Enlisted personnel pertaining to squadron headquarters.
f. Includes:
356 riding (2 per officer).
36 pack.
8 draft.
The equipment listed herein is tentative.
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Table III. Rifle Troop, Cavalry Regiment.

Personnel	Specialist ratings (class)	Troop hq.	Rifle platoon			Total 4 platoons.	Machine rifle platoon			Total troop
			Platoon hq.	Squad	Total platoon (3 squads)		Platoon hq.	Squad	Total platoon (4 squads)	
Captains		2a								2
First lieutenants			1b		1	2				2
Second lieutenants						2	1b		1	3
Total commissioned		2	1		1	4	1		1	7
First sergeant		1								1
Sergeants, incl.		3	2		2	8	1		1	12
Basic			(1)		(1)	(4)				
Mess		(1)								
Platoon			(1)		(1)	(4)	(1)		(1)	
Stable		(1)								
Supply		(1)								
Corporals, incl.				1	3	12		1	4	16
Squad leaders				(1)	(3)	(12)		(1)	(4)	
Privates 1st class and privates, incl.		19	2	7	23	92c	2	6	26	137c
Buglers		(2)								
Cooks	4th	(2)								
Cooks	5th	(1)								
Farrier	4th	(1)								
Gunners, machine rifle	6th							(1)	(4)	
Horseshoers, basic	5th	(2)								
Horseshoers, clinical	4th	(2)								
Messengers		(2)	(2)		(2)	(8)	(2)		(2)	
Saddlers	5th	(1)								
Scouts	6th			(1)	(3)e	(12)				
Scouts				(1)	(3)e	(12)				
Wagoners	6th	(3)f								
Wagoners		(2)f								
Privates basic		(1)		(5)	(15)	(60)		(5)	(20)	
Total enlisted		23	4	8	28	112	3	7	31	166
Aggregate		25	5	8	29	116	4	7	32	173
Horses		32	6	8	30	120	5	10	45	197g
Mules		16								16
Wagons, escort (combat)		1								1
Wagons, escort (forage and pioneer)		1								1
Wagons, escort (ration and baggage)		2								2
Wagons, spring		1								1
Pistols		25	5	8	29	116	4	7	32	173
Rifles		20	4	8	28	112	3	3	15	147i
Rifles, machine								2	8	8
Sabers		17	5	8	29	116	1		1	134j

Notes: a. One is junior captain and second in command. He commands detached half of troop whenever troop for tactical employment is divided into two approximately equal parts.

b. First or second lieutenant.

c. Includes:
46 privates 1st class.
91 privates.
Summary of specialist ratings:
4th class 5
5th class 4
6th class 19

e. Specially trained ground and air scouts.

f. Wagoners not mounted.

g. Includes:
175 riding (2 per officer).
18 pack (2 picket line, 2 rations, 2 cooking outfit, 8 machine rifle and 4 machine ammunition).
4 draft (spring wagon).

i. All enlisted men are armed with rifle except first sergeant, 2 buglers, and 1 corporal 1 gunner and 2 men (ammunition carriers) of each machine rifle squad.

j. All personnel of troop armed with saber except cooks, wagoners and enlisted men of machine rifle platoon.

The equipment listed herein is tentative.

Approved April, 1928—Effective July 1, 1929.

APPENDIX II.

CAVALRY DRILL AS PRESCRIBED IN TRAINING REGULATIONS.

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APPENDIX II.

CAVALRY DRILL AS PRESCRIBED IN TRAINING REGULATIONS

Introduction.

There are two systems of Cavalry Drill now in use. One system, described in the new "Cavalry Field Manual," is presented in this text in the course in Cavalry Drill on pages 185 to 321, inclusive.

The Cavalry Drill described in Training Regulations (series 425) has also been in general use for a number of years, and is therefore included in this text.

It will be noted that the instruction of the soldier, dismounted without arms, and mounted and dismounted with the rifle, machine rifle, pistol and saber, definitions and signals, are identical in the two systems of drill. Accordingly, this material is not repeated here, but will be found in the course in Cavalry Drill in the body of the text, as follows:

Instruction Dismounted Without Arms, Chapter I.

Dismounted with Rifle and Machine Rifle, Chapter II.

Manual of the Rifle; Mounted, Chapter III.

Manual of the Pistol, Chapter IV.

Manual of the Saber, Chapter V.

Definitions, Chapter VI.

A few additional definitions will be found in this appendix at the appropriate place.

Drill and Combat Signals, Chapter VII.

A few additional signals will be found in this appendix at the appropriate place.

CHAPTER I.

GENERAL PRINCIPLES. TRAINING. DEFINITIONS. DRILL AND COMBAT SIGNALS.

GENERAL PRINCIPLES OF THE DRILL.

Formation. Except as otherwise specifically stated all formations are in single rank.

The Leader and the Base. Line is formed habitually on the leader; the base unit forms in rear of him and when moving follows him. When it is necessary to form line to a flank by wheeling by fours the leader hastens to his position in front of the unit he desires to act as the base; the base unit selected is usually in or near the center.

In forming line from column in an oblique direction the leader causes the head of the column to march in the new direction before ordering the deployment.

The unit commander is the leader. He marches in the direction and at the gait or pace desired. The leader is followed by the base unit or element upon which the other units or elements regulate. In column and in echelon the base unit or element is that one which is leading.

The leader may leave the guidance of the base unit to a subordinate and so become free in his movements.

Gaits in Mounted Evolutions. In movements from the halt, or when marching at the walk, if the gait be not specified in the command the base unit takes or maintains the walk.

When mounted, line is formed to the front from column by increasing the gait of the rear elements without command or by indicating a gait *for them*. The head of the column preserves the gait of the march. When the formation must be hastened or executed in a restricted space, the leader of the leading element diminishes its gait or halts it, according to the object in view. When an increased gait is indicated in the preparatory command or during the execution of the movement it applies only to those elements which have *not* completed the movement. If a decrease in gait is ordered, it applies to the base and those elements which *have* completed the movement.

Column is formed to the front from line on the base element at the gait of march, or at the gait ordered. The other elements take or maintain the next slower gait, or halt, until they can take their places in column.

In all other movements, if the units have equal distances to go, they move at the gait of march or at that indicated in the command. If the distances are not equal, the base unit maintains the gait of march or takes that of the leader; the other units take a correspondingly slower or faster gait and on arriving at their places take the gait of the base unit. The leader of the base unit regulates its gait so as to facilitate the formation or to attain the object in view. In all evolutions the elements of the command must be led to their places by the shortest practicable route.

Dismounted Movements. Dismounted movements conform to the principles of mounted movements, unless exceptions are noted and except where mounted movements are obviously inapplicable to dismounted duty. The execution of dismounted movements, will, where differences in mounted and dismounted methods necessarily exist, be in accord with the principles explained under The Soldier Dismounted, Without Arms (Chapter I, Cavalry Drill), and under the Rifle Squad, (Chapter III, Cavalry Drill, Training Regulations.)

Pace in Dismounted Movements. In movements from the halt, or when marching in quick time, if the pace be not specified in the command, the base element takes or maintains quick time.

Line is formed to the front from column without increasing the pace of any elements unless a new pace is ordered. The leading element continues until halted. The other elements march toward their proper places until they have arrived on the line, when they halt abreast of the base.

If marching in quick time, or if at a halt, and *double time* is indicated in the preparatory command or during the execution of the movement, the base element moves in quick time and the other elements move in double time. If marching at the double time and no pace is indicated, the leading or base element takes quick time and the other elements continue in double time until they have completed the movement. If marching at double time and *quick time* is indicated in the preparatory command or during the movement, all elements come to quick time and the movement is completed by halting the base element.

Column is formed to the front from line on the base element without change of pace, or at the pace ordered. The other elements take the next slower pace, or halt, in units larger than a platoon, until they can take their places in column; in the platoon or squad the other elements mark time until the proper time to move to take their places in the column.

Special Rules. *a.* To avoid repetition, movements by or to the flanks are explained for the right only. Unless specially excepted they can be executed by or to the left.

b. In turning about, unless otherwise indicated, officers and men turn to the left about when mounted and to the right about when dismounted.

c. Officers, and noncommissioned officers acting as platoon leaders, draw and return saber with the superior commander.

d. In all dismounted formations and movements a noncommissioned officer commanding a platoon or troop carries his rifle in the same manner as the men.

Commands. The will of the leader may be communicated by:

Signals; gait and direction of horse, and in general the example of the leader; voice; whistle; trumpet calls; in large commands, messengers; or any combination of the above. The method or combination of methods best suited to the occasion must be employed. Whatever means is used will be considered the equivalent of an oral command. The base unit, by the example of its march, formation, and gait or pace, shows clearly by visible signs the will of the leader.

There are two kinds of commands: The *preparatory* command, such as ***Forward,*** indicates the movement that is to be executed and the command of *execution,* such as ***MARCH, HALT,*** or ***ARMS,*** causes the execution. Sometimes a single command is given which both indicates the movement and causes its execution, such as ***RALLY,*** or ***FOLLOW ME.*** (In the text, preparatory commands are distinguished by ***boldface*** type, those of execution by ***BOLDFACE*** capitals.)

The preparatory command should be given at such an interval of time before the command of execution as to admit of its being properly understood; the command of execution should be given at the instant the movement is to commence.

If the instructor wishes to revoke a preparatory command, he does so by commanding: ***AS YOU WERE.***

The principle governing the wording of commands is that the commander announces the result desired and leaves to the subordinate commanders the adoption of the proper means to obtain this result. Thus, in line, the captain commands ***Right oblique*** and not ***Platoons right half turn.*** It then becomes necessary for the platoon commanders to command ***Right half turn*** to obtain the result desired by the captain.

Exceptions to Rules. Exceptions to these general rules will be indicated when necessary.

BASIS OF THE TRAINING SYSTEM.

Initiative. The commander must adapt his actions to the actual conditions, departing when necessary from the *letter* of regulations. The methods prescribed in Training Regulations are devised to fit the general case. They are to be regarded as guides furnished to the various leaders who, to secure uniformity and avoid confusion, should employ them in the ordinary case; but everything that is not foreseen by the regulations is left to the *initiative of those who execute* the action and the interference of a chief is needed only when the actions of his subordinates are evidently erroneous.

Leading, Direction, and Gait or Pace.

When Dismounted. In dismounted action the commanders of the various elements, up to and including the platoon, lead their elements until the moment for firing. When fire is to be opened the commander drops back so as not to mask the fire of his unit. When fire is to be opened, squad leaders normally place themselves in rear of the skirmish line so as to assist in fire direction and control; sometimes they may remain in ranks so as to fire with their squads. During movement of the skirmishers to the front, squad leaders lead their squads. A commander of a platoon leads the front line of skirmishers when they are moving to the first firing position; but when fire is opened he must be in rear of the firing line. In subsequent movements forward, if the platoon moves as a unit, the platoon commander leads it; if it moves by fractions he leads that fraction which the situation demands. Commanders of units larger than the platoon may at critical moments be required to set an example to the others and to lead their units forward to the attack; but the usual place of such commanders is near their supports or reserves.

As soon as the deployment is effected it is, therefore, the squad and platoon leaders of the firing line who must keep the line moving in the proper direction and at the proper pace, in accordance with the instructions and indications of higher commanders. In other words, higher commanders, after having indicated the objective, depend upon others in front of them to carry out the orders and intervene only to correct errors or to set an example.

When Mounted. In mounted maneuver, deployment, and action, the case is somewhat different. During maneuver each unit commander leads his unit. After deployment each commander leads his unit or controls it from a position in the line, unless he has deployed the unit in more than one line or holds out supports or reserves. In the latter case the commander will usually lead the elements he has held in rear, so as to retain control of the combat, while the front line is actually controlled by a leader designated by the commander for the purpose or by the leaders of the component units, complying with orders or conforming to the movements of a base unit in the line. Squad leaders, except when acting alone, will remain in ranks with their men during close-order maneuver unless actual leading is required by the situation; such actual leading may often be required by the broken nature of the ground or by the resistance of the enemy. After deployment the squad leader leads his squad or controls it from his position in the ranks.

A base unit must follow its leader, marching in his trace and at his gait, or move on the point designated by him; the other units regulate on this base unit in all formations and in all evolutions unless otherwise ordered. In line the base unit is normally the center, or right center unit if the number of component units is even. But when necessary the leader may indicate any unit as the base.

To increase the facility of leading for the troop commander, the platoons, while marching in troop line, are echeloned on the base platoon. This echeloning

of component units is not necessary for the squadron or regiment, since the intervals between troops in the squadron or between squadrons in the regiment are always sufficient to permit the component units to march abreast of the base unit without interference with it, guiding upon it and taking its formation and gait. But in the troop it is not desirable to have these larger intervals between platoons, as they would destroy the continuity and cohesion which are necessary and possible for a unit of this size. For the troop in line of columns as well as in line, leading is made easier by having the base unit in advance of the others. If each troop in the line is led in this manner by its captain, the squadron commander will have no difficulty in leading his squadron.

Therefore the base platoon in the troop is somewhat in advance of the others, both in line and in line of columns. This platoon, distinctly detached and clearly visible, translates visually by its formation, gait, and direction the wishes of the captain.

If he is leading, the commander has, therefore, only to lead his base unit; the other units regulate upon it; if he personally wishes to move independently, he has only to indicate the direction and gait to the commander of the base unit.

Order. By order is meant the special methodical arrangement of the elements of a unit or command. Order is the primary requisite for the proper execution of evolutions under all circumstances of mounted and dismounted action or employment. When it is said that a unit is *in order* in any formation, it is meant that the arrangement and condition of the component elements are such that the unit is ready to execute in the accustomed manner any movement contemplated from such formation.

Hence it may be seen that any unit is in order if its component units are in order, whatever their relative position. It is of no importance that a component unit is not exactly in its proper place, provided it is in order, while, on the other hand, if it reaches or maintains its exact place in disorder, further maneuver is impossible. However, a platoon, even though its squads have lost organization, can easily be rallied in line, and can then be led in any direction, counting fours as it moves; squad reorganization can be delayed for the moment. Larger organizations can not be deployed or maneuvered without confusion unless they are divided into platoons each capable of being led and controlled.

For these reasons and because it is the smallest unit usually commanded by an officer, the *platoon* is taken as *the unit of order.*

As the surest means of securing the cohesion of a line in close order, the troop line is formed of platoons which are themselves individually aligned as to their own ranks, but are slightly echeloned in rear of the base platoon. Very small distances have been allowed between these echelons and these are designed to disappear at the moment of attack.

In addition to the greater facility of leading, as already explained, this formation insures greater flexibility, order, and cohesion than one in which the platoons are on the same line.

Greater flexibility, because the leader can make slight changes of direction, as he has to lead not a line of platoons rigidly joined together but a line of platoons articulated, each platoon with free ground to its right and left.

Greater order, because each platoon has the same ease of movement as if it were alone and because the elasticity of the echeloned formation facilitates the regularity of gait.

Finally, greater cohesion, because of the absence of those crowding effects which immediately react in sudden extensions occurring often at the very moment of striking the enemy.

Deployment. Deployment should be accomplished in the simplest and easiest manner, as this must frequently be done with the utmost promptness and

under conditions of excitement. There must be no uncertainity for the platoon leaders in the troop nor for the captains in the squadron.

The unit is faced toward its objective before deployment. This can always be done except in case of surprise.

The unit, having been faced toward its objective, is deployed fanwise. This is the simplest method, since neither the leader nor the base unit have to change their places and because the axis of movement of the unit is the same before, during, and after deployment. A single normal method of deployment is therefore prescribed.

In case of surprise, or when the terrain requires it, a lateral deployment may be desirable. This is accomplished by a movement by fours to the right or left and by a prescribed command which permits no doubt as to the direction of the deployment and which is confirmed by the position taken by the leader.

There are occasions when it is desirable to deploy at the gallop, or at the run when dismounted, but there are many others where prompt completion of the deployment is of first importance; the leading unit must then reduce the gait if mounted, or halt if dismounted. Vigor of attack does not consist in speed of heads of columns laboriously overtaken by units more or less disordered by their efforts. The maximum vigor is attained as a result of careful deployment without exhausting men or horses and without confusion or disorder and from executing the attack as a unit.

The Platoon and Its Squads.

Battles or combats are not fought in long lines of solid and unbroken ranks, but by soldiers in small groups, each group animated by a leader. These groups may be combined to act in unison, as when the several platoons of a troop charge in line; or each group may act independently but in conjunction with the other groups, as when the several platoons of a troop are advancing in echelon or, when dismounted, each platoon is advancing by rushes conforming to the movements of the other platoons.

The strength of the smallest organized group has been determined by experience showing that cooperation and teamwork between individuals can be effected in a group of as many as 8 men, and that a group of this size can not be thrown into confusion from which it can not almost immediately emerge. Team play in a platoon of 25 or 30 men or more can be effected only by the cooperation of the leaders of such small groups. Therefore a platoon is made up of a number of small groups called squads. These squads normally consist of 7 men and a corporal as squad leader.

The platoon, commanded by an officer, is large enough to maintain its identity though considerably depleted, and its numerical size, either smaller or greater than the normal platoon, makes no difference in the evolutions or maneuvers of the troop. Therefore assignments to platoons should be permanent. This permanency is further made imperative by the truth of the principle that in combat the men should be led by the officer who has trained them and who therefore knows them and has their confidence.

Any platoon, or any group of men consisting of more than 11 individuals, must, for reasons just stated, be organized into squads before undertaking any serious operation, whether it is a march, a drill, a tactical exercise, fatigue duty, or any service in campaign. This organization must be kept unchanged as long as possible. In the field it is often possible to keep this permanency for many weeks at a time; in garrison it is more difficult, but can usually be effected by care on the part of troop commanders.

For duty in ranks the permanency of the squad organization should not be carried to an extent that will cause a number of incomplete squads in the platoon. To void this the more depleted squads should be broken up and their members used to complete the other squads. If, after completing all squads to

a strength of 8 men, as many as 4 men are left over, they constitute another squad; if less than 4 men are left over, all of them should be attached to one squad, or assigned to separate duty as messengers or orderlies or other special employment. The squad may therefore consist of from 4 to 11 men, inclusive. The normal squad consists of 8 men, of which one is the leader.

The evolutions of drill and the tactical movements of all units are based on two guiding principles.

The integrity of all units must be preserved as far as possible. If detachments must be made, it is better to take them all from one unit rather than to deplete or break up the organization of several units.

Leaders of all squads must be trained and always practiced in leading or controlling their units in all evolutions in close order, quite as well as in extended order or in combat exercises. By applying this principle to the system of drill all movements or evolutions in close order are made to prepare the leaders of these groups for the leadership which will be required of them in combat exercises and in actual combat. From the very start, therefore, officers and noncommissioned officers are consistently developed as group leaders, the squad leaders in the platoon, the platoon leaders in the troop, the troop leaders in the squadron, and so on.

For this reason the evolutions of the platoon drill are so devised as to require the squad leadership already referred to. By means of this constant squad leadership the platoon commander has greater control during all evolutions, maneuvers, or actions of any sort.

The Troop and Its Platoons.

The number of men in a troop is based on the number of platoons, organized as may be determined for the platoon, that one captain can efficiently command. In addition to these men, there are the noncommissioned officers and specialists not assigned to platoons. The troop must have several platoons that are free to execute either mounted or dismounted action. The machine rifles that are assigned to a troop are, with their crews, organized into squads with two guns to the squad, and these squads together form the machine-rifle platoon; there is but one of these platoons in the troop.

This organization permits mounted attack by the rifle platoons unhampered by the led horses and packs of machine rifles. It also permits the employment of these rapid-firing weapons to support the mounted attack by their fire under supervision of their platoon leader.

When the troop engages in dismounted action the machine-rifle squads normally join the rifle platoons to which they are permanently assigned for dismounted combat.

The system of drill in the evolutions of the troop is therefore based on the movements of the several rifle platoons, while the machine-rifle platoon conforms with its own drill to these movements.

Since the squadron and the regiment are only collections of the smaller units, the basis of the training system is already sufficiently explained for them.

Dismounted Action.

While cavalry should not in general be used dismounted to make deep penetrations such as are often required of infantry, it must, however, be able to make such a dismounted attack or to attack and defeat an enemy in a given position, as well as to organize and hold defensive positions until its mission is accomplished.

For simplicity all the evolutions of dismounted drill are made to conform as nearly as possible to those for mounted drill. The basis of the system for dismounted attack is made to correspond to that upon which the infantry attack is founded. While the organization of the cavalry units does not per-

mit the same arrangement of units as is used in the infantry, the fundamental tactical principles are the same, and the methods of fire and movement, advance by rushes, or by infiltration that are prescribed in these regulations are the same as those prescribed for infantry.

DEFINITIONS OF TERMS USED IN CAVALRY DRILL AND TRAINING.

See Chapter VI of Cavalry Drill, *ante*.

The following additional definitions should be noted:

Accessory defenses. Wire entanglements, land mines, chevaux-de-frise, traps, caltrops, and other obstacles, constituting passive elements of defense.

Foragers. Mounted troopers abreast of each other with intervals greater than those prescribed for close order.

Skirmishers. Dismounted men deployed in line in extended order.

DRILL AND COMBAT SIGNALS.

See Chapter VII of Cavalry Drill, *ante*.

The following additional or different signals should be noted:

As foragers (preparatory). Extend the arm horizontally to the front, palm down, and move it rapidly from left to right and from right to left in a horizontal plane.

As skirmishers (preparatory). Raise both arms laterally until horizontal, arms and hands extended, palms down. If it is necessary to indicate a direction of march, signal Forward, and move at the same time in the desired direction.

Disperse by squads (execution). Raise the right arm to the shoulder, palm to the front, fingers extended and joined, and thrust the open palm vigorously several times to the left, front, right, and rear.

Double rank (preparatory). Extend the arm horizontally to the right, elbow at the height of the shoulder, forearm vertically downward, fist closed. Move the arm, in this position, backward and forward several times.

Mass (preparatory). Extend the hand horizontally to the right, palm up, fingers extended and joined, and, by flexing the elbow, bring the tips of the fingers to the point of the shoulder and back again, several times.

Additional signal for rifle units:

Assault fire (execution). Extend the arm and hand to the front, palm up. Move the arm vertically upward, describing an arc of about 45°. Then signal *forward*.

CHAPTER II.

THE CAVALRY RIFLE SQUAD.

Principles and Formations.

General. A squad normally consists of 7 privates and a corporal who is the squad leader. It is an element of the platoon, and all evolutions and movements of the squad in the platoon are the same as prescribed in the school of the squad. Squad drill is therefore the basis of platoon drill, and to have a well-trained platoon it is necessary to have well-trained squads.

With recruits, squad drill commences almost simultaneously with individual instruction. After a few drills have sufficiently advanced the troopers in their individual instruction, the instruction as a squad begins. Individual instruction and squad instruction thus proceed hand in hand, and the recruits learn, from the very start, to look upon the squad as the basis of all collective movement and action, and to regard the squad leader as a person to be followed and obeyed.

In performing the evolutions of drill at attention and by fixed commands, either in close or extended order, the recruits acquire discipline. But, at the same time, if this is overdone, loss of initiative is the result. Initiative is required in combat. It is a mistake, therefore, to drill the squad too long in those exercises which are performed in unison and at fixed commands. Instruction in setting up exercises or in equitation serves to vary the work and to lessen the monotony; but in even these things care must be had not to prolong them too much on any one day.

Initiative, instead of being lessened, must be cultivated. The interest of the men must be awakened, and they must be made to understand what all these preparatory exercises and drills are for. Therefore combat exercises and exercise simulating the incidents of campaign must be held early in recruit instruction. These exercises should begin in the first ten days. They should be dismounted until the recruits learn to ride well enough to avoid accidents to themselves or to their horses. But mounted exercises should not be postponed until the men are perfected in equitation. This moment never arrives, and even mounted combat exercises can be made simple enough and conducted at such slow gaits as to enable the recruits to execute them without danger. Perfection in the performance of these mounted and dismounted combat exercises is not expected. Too much fault-finding must be avoided. The instructor must be calm and considerate, and he must be contented with a little progress from day to day, and with teaching one thing at a time. He must not tell the squad all he knows the first day. Commanding officers or staff officers, in observing or supervising the instruction, must not, therefore, disconcert the instructor by expecting perfection before perfection is due. They, too, must be contented with a little progress from day to day, and they must be careful not to criticize or interfere in such a manner as to destroy the initiative of the instructor.

For movements in close order, the squad leader should habitually take his normal position in ranks in order to accustom the men to being led or conducted by him from that position, as well as to accustom himself in that position to command his squad. As instruction proceeds, privates are practiced in acting as squad leader, or as guide of the squad when the leader marches in front. For recruits, dismounted squad drill is usually commenced before

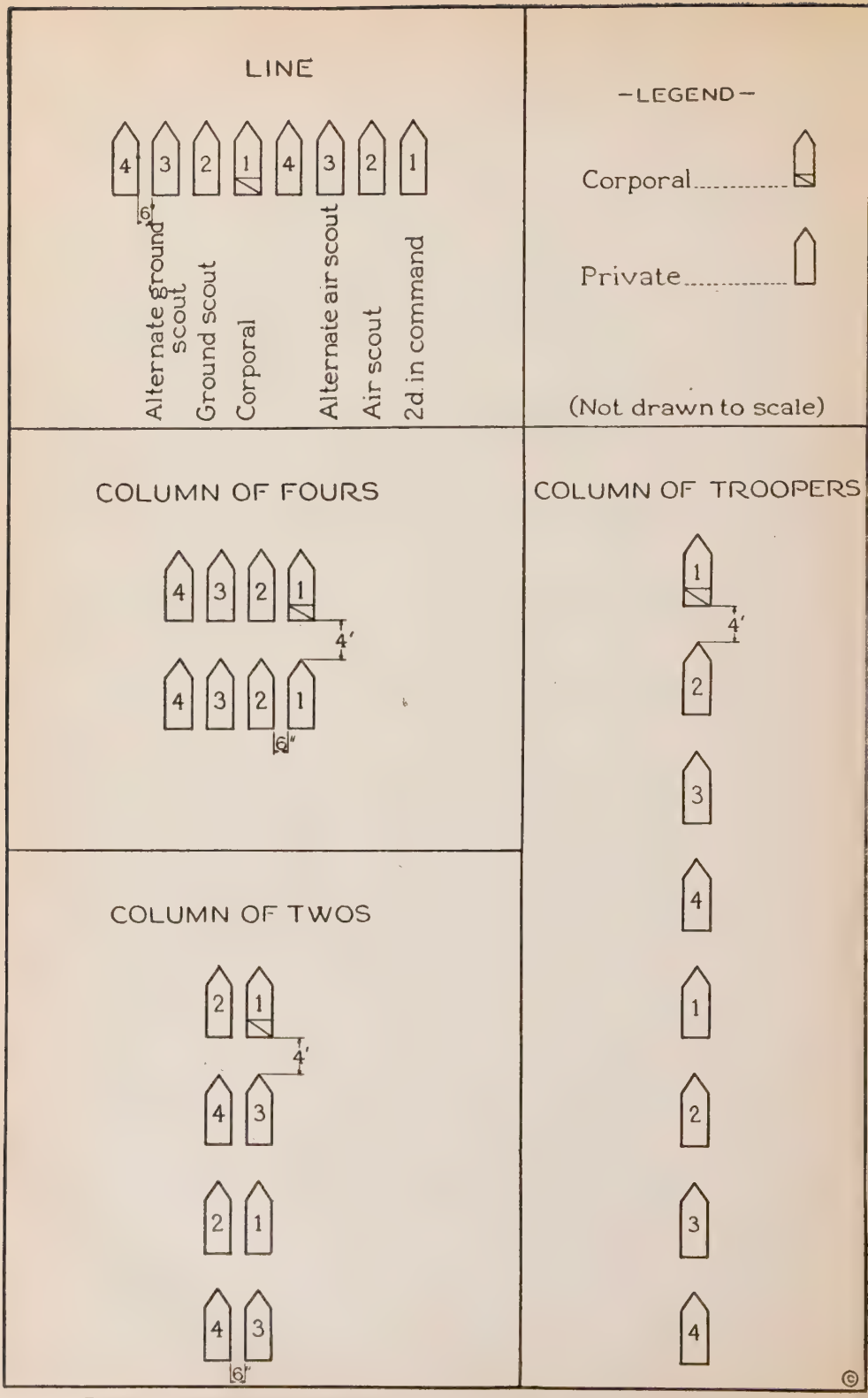


PLATE 1. Close-Order Formations of the Cavalry Rifle Squad, Mounted.

mounted squad drill because the individual instruction mounted will not proceed as fast as the individual instruction dismounted.

It is difficult for a squad leader in his normal position to lead the squad properly and at the same time supervise the march and correct the errors of individual troopers. For this reason it is desirable, in the earlier collective drills, that the instructor have as an assistant another noncommissioned officer or a well-instructed trooper as file closer.

The object ultimately to be sought in the instruction is the quiet, rapid, and effective handling of the squad with a minimum of either oral commands or signals The squad is required to pass rapidly from one formation to another, a new movement being occasionally initiated before the execution of the one preceding it has been completed.

Principles Controlling the Evolution of the Squad. When a squad is in the platoon, the squad leader is habitually in the rank.

See Plate 1 for close order formations of the Cavalry rifle squad, mounted, and Plate 2 for dismounted formations.

When the squad is acting alone, or when for any other reason it becomes desirable, the leader may take position in front of his squad and may designate

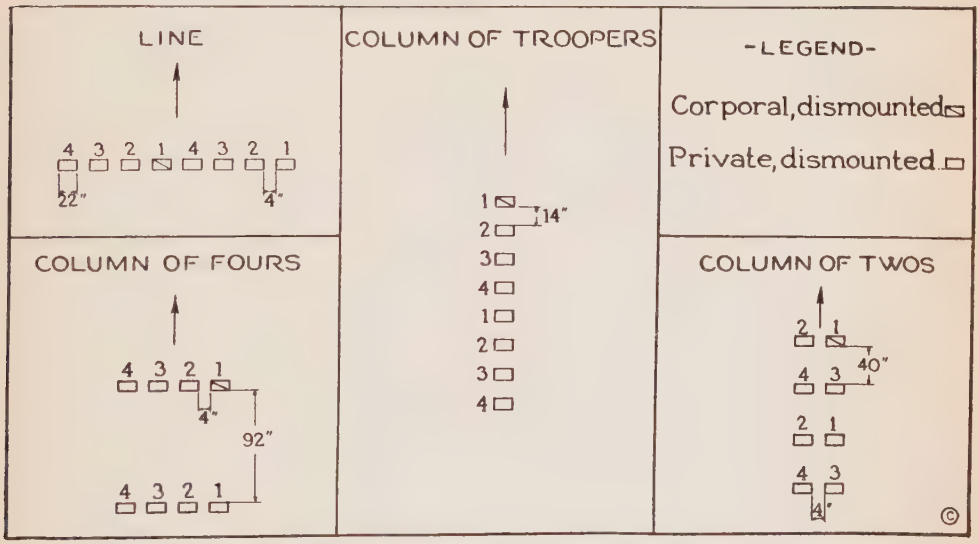


PLATE 2. Close-Order Formations of the Cavalry Rifle Squad, Dismounted.

a trooper to act as guide in the rank in the place ordinarily occupied by the leader. The evolutions of the squad are then made to conform to the position of this guide.

In all explanations of squad movements and formations the leader is referred to as being in rank as guide of the squad. If, during an evolution or movement, the squad leader desires to place himself in front of his squad, he designates a guide by name and places himself 3 yards in front of the guide and commands: ***FOLLOW ME.*** The guide follows the leader, who sets the direction, gait, and pace.

In column of fours or twos, the guide of each four or two is always on the right.

Upon its assembly, the squad is formed in line or in column. In *line* the squad leader is habitually in the center of his squad: that is, as number one of the left four. In *column*, the squad leader is habitually in the leading element; that is, as number one of the leading four or two, or as the leading trooper in a column of troopers.

The squad, being in line, forms column usually in such a manner that the leader is found in the leading element. By this principle the leader initiates the movement and takes with him the element to which he belongs and which is to be in front. Column of fours, twos, or troopers is thus habitually formed by moving the *left* four in front. The *right* four will be moved in front if the leader's four happens, in consequence of a previous wheeling into line by fours, to be temporarily on the right of the line.

Being in column of fours, twos or troopers, the squad forms line usually in such a manner that the leader is found in the center of his squad. Line is thus habitually formed by moving the rear four to the right front up on the line.

If the leader happens to be in the rear four, line is formed to the left front. The leader is guide of his four and initiates the movement so as to place himself in the center of his squad.

When any squad, on account of temporary expediency, contains more than 8 men and therefore has more than two sets of four, the principles of deployment remain the same. Any four to which the leader does *not* belong moves to the right front in deployment unless it be the leading four.

The squad in line or column of fours may form column of fours or line by wheeling by fours, if necessary, even though the leader may in consequence find himself out of his normal position.

Temporary exceptions to the usual position of the leader, brought about by wheeling by fours, should make no difference, as he must be able to manage his squad from any position, and being temporarily out of his normal position he has only to wait for another evolution to place him in it again.

As foragers is formed by the same principles that govern the formation of line.

To Form the Squad, Mounted. To form the squad in line, the leader acts as the base of the formation and takes position where the center of the squad is to rest and facing in the required direction, and commands: ***LEAD INTO LINE.*** The troopers lead out so as to approach the line successively directly from the rear, and form in single rank on the leader, four troopers on his right and three on his left. The troopers form at ***Stand to horse,*** with intervals of 18 inches between horses.

The line being thus formed the leader verifies the presence of the men, or calls the rolls, and commands: ***COUNT FOURS.***

When there is an incomplete four the leader cautions the troopers in it as to the numbers assigned them. The four to which the leader belongs is completed first, and the other four becomes the incomplete four. If but five men all told remain in a squad, three men form a four with the leader and the fifth man acts as a four by himself, or, if the squad is in the platoon, the fifth man is assigned to the line of file closers or to another squad by his platoon commander.

The formation in column of fours, twos, or troopers is similarly executed. The leader commands: ***LEAD INTO COLUMN OF FOURS (COLUMN OF TWOS, COLUMN OF TROOPERS).*** The leader is No. 1 of the leading four or smaller element. The elements of the column form in order from front to rear, with distances of 4 feet between successive fours, twos, or troopers. In column of fours or twos, each four or two forms on its right trooper.

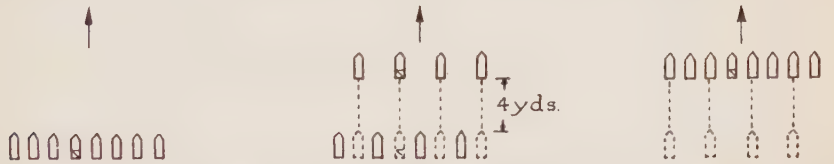
The squad may also form in similar manner after the troopers mount. In this case the leader causes the troopers to mount individually after saddling and commands: ***RIDE INTO LINE (COLUMN OF FOURS, COLUMN OF TWOS, COLUMN OF TROOPERS).*** The interval between mounted troopers is 6 inches from knee to knee.

To Form the Squad, Dismounted. The dismounted squad is formed on principles similar to those for the formation of the mounted squad. The leader commands: ***FALL IN.*** The troopers form as prescribed in "The Soldier, Instruction Dismounted, Without Arms." The leader verifies his squad and causes it to count four. The interval between troopers is 4 inches.

If armed with the rifle, the troopers fall in with rifles at the order. As soon as the line or column is formed the leader commands: 1. ***Inspection,*** 2. ***ARMS,*** 3. ***Right shoulder,*** 4. ***ARMS,*** and calls the roll. Each man, as his name is called, answers "Here," and executes order arms. If he can verify his squad without calling the roll the third and fourth commands are: 3. ***Order,*** 4. ***ARMS.***

The formation in column of fours, twos, or troopers is conducted in accordance with the modifications indicated. The commands of the leader are: ***FALL IN, IN COLUMN OF FOURS (COLUMN OF TWOS, COLUMN OF TROOPERS).*** The distance between successive fours is 92 inches; between successive twos, 40 inches; between successive troopers, 14 inches.

To Mount. The squad being in line, at ***Stand to horse,*** the habitual commands for mounting are: 1. ***Prepare to mount,*** 2. ***MOUNT,*** 3. ***Form,*** 4. ***RANK.*** At the first command the odd numbers lead out 4 yards directly to the front, and all execute ***Prepare to Mount*** as prescribed in *"Mounted Instruction,"* (Chapter II, Equitation); at the second command all the troopers complete, simultaneously, the movements of mounting as prescribed. At the fourth command the even numbers move up into their intervals in the line. (See plate 3.)



Being in *Line* at *Stand to Horse.* 1. *Prepare to Mount,* 2. *MOUNT.* 3. *Form,* 4. *RANK.*

PLATE 3. Being in Line, to Mount.

If the squad be mounted in column of fours, the third and fourth commands are omitted. At the first command the troopers of each four open out fanwise, Nos. 1 and 2 to the right, Nos. 3 and 4 to the left. Nos. 1 and 4 open out a little more than Nos. 2 and 3, all opening only enough to permit the troopers to mount without interfering with each other. The troopers habitually straighten their horses in the column as soon as all have mounted. The squad in column of twos is mounted by commands and methods conforming to those used for mounting from column of fours.

The preparatory oral command for mounting may be omitted. The squad then executes at the command ***MOUNT,*** all the movements prescribed for the commands: 1. ***Prepare to mount,*** 2. ***MOUNT.*** The troopers mount promptly, but not in unison.

The preparatory *signal* for mounting, when followed immediately by the signal of execution, will be understood as equivalent to the oral command ***MOUNT,*** and will be executed accordingly.

To Dismount. The squad being in line, the habitual commands for dismounting are: 1. ***Prepare to dismount,*** 2. ***DISMOUNT,*** 3. ***Form,*** 4. ***RANK.*** At the first command the odd numbers ride 4 yards directly to the front, regulating on the right, and all the troopers execute ***Prepare to Dismount*** as prescribed in the Soldier, Instruction Mounted, Without Arms (Chapter II, Equitation). At the second command the troopers execute, simultaneously, the movements of dismounting as prescribed. At the fourth command the even numbers lead into their intervals in the rank. The third and fourth commands are given only in case it is desired to form rank. The squad may be dismounted and, without forming rank, execute rest or at ease, or be inspected, mounted, or dismissed. The modifications indicated for dismounting in column of fours and column of twos correspond to those prescribed for mounting from the corresponding formation, except that the horses are not habitually straightened

in the column after dismounting unless the dismounted squad moves forward (the troopers leading their horses).

The preparatory oral command for dismounting may be omitted. The squad then executes at the command *Dismount,* all the movements prescribed for the commands: 1. *Prepare to dismount,* 2. *DISMOUNT.* The troopers dismount promptly, but not in unison.

The preparatory signal for dismounting, when followed immediately by the signal of execution, will be understood as equivalent to the oral command Dismount, and will be executed accordingly.

In forming rank, as above, the odd numbers hold their horses' head well up to prevent kicking.

The Rests and Route Orders. Being at *Stand to horse,* the command *REST* is executed as dismounted without arms, except that the men hold the reins and keep their horses in place.

Being mounted, at the halt, at the command *REST,* or being in march, at the command *ROUTE ORDER,* the men are permitted to turn their heads, to talk and to make slight changes of position, but not to lounge in their saddles or to lose their relative places.

Being at *Stand to horse,* the command *AT EASE* is executed as when dismounted, without arms.

Being mounted, at the command *AT EASE,* the men are permitted to ride as in route order, except that they preserve silence.

After dismounting from line, *REST* or *AT EASE* may be given the squad either before or after forming rank.

The dismounted squad executes the rests and route order as prescribed in the Soldier, Instruction Dismounted, Without Arms (Chapter I, Cavalry Drill, *ante*).

To Dismiss the Squad. The men being dismounted, in line, at the command 1. *By the right (left),* 2. *FALL OUT,* the man on the right leads his horse directly to the stable or picket line. The other men, in successive order from the right, follow at 4 feet distance until near their places on the picket line or in the stable, when they leave the column and move directly to their respective places. Having secured their horses, the men unsaddle and unbridle, groom their horses, clean their equipment, and place the latter as prescribed.

To hasten the movement the instructor may command: 1. *By the right and left,* 2. *FALL OUT.* The men on the right and left of the line lead their horses directly to their places on the picket line or in the stable, followed in succession by the men on their left and right, respectively.

If the men are in line facing their respective places on the picket line, the command *FALL OUT* may be given. Each man then moves directly forward to his place on the picket line.

If the men are dismounted, in column of troopers, or in any other similar formation, at the command *FALL OUT,* the guide leads his horse directly to his place on the picket line or in the stable. The other men follow in successive order.

After falling out and putting up the horses and horse equipment the squad is assembled and marched to the troop parade ground, where it is dismissed.

Dismounted, without horses and not under arms, the command is: *DISMISSED.*

Dismounted, without horses but armed with the rifle, the squad is dismissed at a halt by the commands: 1. *Inspection,* 2. *ARMS,* 3. *Port,* 4. *ARMS,* 5. *DISMISSED.*

Close-Order Drill.

Alignments. For the preliminary instruction (conducted without formal command), the instructor has two troopers on the right of the rank move for-

ward a convenient distance and halt. He then aligns these two troopers carefully, with the proper interval as in line, and causes the other troopers to note the details of the alignment. The other troopers are then required to move up one at a time and align themselves, with the correct interval, on the line thus established. The troopers move forward, in order from right to left, at successive repetitions by the instructor of the caution, ***NEXT.*** Each trooper, when on or near the line, executes eyes right, aligns himself accurately on the line established by the trooper or troopers on his right, and looks to the front as soon as he thinks himself correctly aligned. The instructor explains and corrects any errors. Similar instruction is given the troopers in aligning themselves to the left. As soon as reasonable proficiency is attained but a single trooper is moved forward and the alignment is made in the same manner upon the single trooper established as the base.

The instruction is similarly given with the center trooper moved to the front as a base. Two troopers, one on the right, the other on the left of the base, then move forward at each repetition of the caution, ***NEXT.***

The instructor observes in the mounted instruction that each trooper moves his horse promptly and halts with his horse correctly disposed; that he sits squarely on his horse without advancing either shoulder or leaning his body to the front or rear; that he dresses promptly as he arrives on the line; and that he makes proper use of the aides.

In the first drills the basis of the alignment is established parallel to the front of the squad; afterwards in oblique directions.

When the troopers have acquired reasonable proficiency in aligning themselves, as above, the alignment is executed at the command ***DRESS,*** given by the instructor from his position as leader. The trooper designated as the guide is always the base trooper of the alignment and places himself accurately 3 yards in rear of the leader. All the other troopers align themselves promptly on the base trooper, continuing to look toward him until the command ***FRONT.*** At this last command, given when the alignment is completed, all turn the head and eyes quickly to the front and take the position of attention. Movements in the rank then cease. The instructor then habitually faces the squad or goes to either flank to verify the accuracy of the dressing, first cautioning the guide to remain in place. The instructor may command: ***RIGHT (LEFT) DRESS,*** when he desires a trooper on the flank to be the base trooper of the alignment. When dressing to the right the instructor goes to a position on the right of the rank facing to the left, verifies the alignment and commands: ***FRONT,*** while in that position. Similar means are used for dressing to the left.

The troopers and their mounts must be so trained as to enable alignment and interval to be kept with sufficient accuracy to maintain cohesion in the mounted charge and to present a creditable appearance at ceremonies and at other occasions of a formal or ceremonial character. A disproportionate amount of time and energy will not be devoted to this detail.

The use of dressing *by command* is ordinarily confined to elementary instruction (as preparation for the march in line) and to formations of a distinctly ceremonial character. At all other times the troopers are required habitually to align themselves on the base trooper or guide without special command and to look to the front as soon as aligned.

Formal dressing is employed only when the squad is at a halt.

The caution ***DRESS,*** may, if necessary, be given to the squad when marching, but it will not be employed when it is practicable to use, instead, cautions addressed by name to the individual trooper or troopers who are at fault.

Alignments, dismounted, are executed by the same general methods as when mounted. At the command ***DRESS,*** the left hand is placed upon the hip to verify the interval. Each trooper in dressing so places himself that his

right arm rests lightly against the elbow of the man on his right if dressing to the right, or that his left elbow rests lightly against the arm of the man on his left if dressing to the left, and that his eyes and shoulders are in line with those of the man on his side next toward the base trooper. The left hand is dropped to the side at the command *Front.*

In marching in line the guide is instructed to maintain a distance of 3 yards in rear of the leader and to follow accurately in his path, whether such path be a straight line or a curve. The other troops are instructed to so regulate on the guide as to preserve as nearly as practicable their alignment and interval in rank, individually increasing or decreasing the gait or pace as may be necessary to do this. The troopers must learn to keep their places in rank without keeping their eyes constantly fixed on the guide. They keep a lookout over the ground in front, cast frequent glances toward the leader to observe his movements and signals, and glance occasionally toward the guide to assure that alignment is being maintained. Each trooper keeps his horse straight in the rank, maintaining his alignment with the guide and his proper interval from the man next him toward the guide. He yields to pressure from the side of the guide and resists pressure from the opposite direction. In case of crowding he does not permit his horse to be crowded back out of the rank but grips his horse tight with his legs and keeps him in ranks; the crowding then soon ceases.

All adjustments of *intervals* (also *distances* when in column) are made *gradually.*

The leader must be careful to march steadily, so regulating his direction and gait as to enable the guide to conform without difficulty.

Being at a Halt, to March to the Front. 1. *Forward,* 2. *MARCH.*

The squad moves forward conforming to the march of the guide.

To trot or gallop from the halt, the appropriate word is added to the first command.

While marching, the squad changes the gait at the commands: 1. *Trot,* 2. *MARCH;* 1. *Gallop,* 2. *MARCH;* or 1. *Walk,* 2. *MARCH.*

To Halt. 1. *Squad,* 2. *HALT.*

All halt at the second command.

The troopers, if not already aligned, align themselves without command on the guide as they halt. Movement in the rank then ceases.

If marching at the trot or gallop, the gait is ordinarily decreased progressively, the halt being executed from the walk.

To March Backward. 1. *Backward,* 2. *MARCH.*

The squad reins back until the command: 1. *Squad,* 2. *HALT.* This movement is executed slowly and for short distances only.

To Oblique by Troopers. 1. *Troopers, right (left) oblique,* 2. *MARCH.*

The troopers execute individually a half turn to the right and then march at an angle of 45° to the original direction, each trooper's right knee in rear of the left knee of the trooper on his right. The squad moves in the new direction regulating by the right trooper, the front parallel to the original front. If in column, the right troopers regulate from head to rear.

Halting the mounted squad while at the oblique should be avoided. If the squad has to be halted thus, the troopers upon halting turn their horses to the original front in so far as practicable.

To resume the original direction by similar means, the commands are: 1. *Forward,* 2. *MARCH.*

In executing the oblique by trooper, *Dismounted,* each trooper half faces to the right and marches so as to preserve his relative position, keeping his shoulders parallel to those of the trooper on his right and so regulating his step that the rank may remain parallel to its original front. In resuming the original direction, the troopers half face to the left in marching, then move

straight to the front. If at half step or mark time while obliquing, the oblique march is resumed by the commands: 1. ***Oblique,*** 2. ***MARCH.*** Should the halt be commanded while the squad is obliquing, the troopers half face to the front.

Being in Line, to Change Direction. The change of direction is only a special case of the march in line; the leader conducts the squad in the new direction.

The troopers remain closed and aligned on the leader, or guide, if the leader be in front, increasing or diminishing their pace or gait accordingly. On completing the change the leader indicates the new direction.

Being in Line, to Turn to the Right or Left. 1. ***Right (left) turn,*** 2. ***MARCH,*** 3. ***Forward,*** 4. ***MARCH;*** or 3. ***Squad,*** 4. ***HALT.***

The turn is but a special case of the change of direction.

In the turn, the leader (and therefore the guide, if the leader be in front and another person is acting as guide) so turns on an arc of a circle that the pivot trooper, in conforming marches on an arc of a circle with radius of 2 yards at a walk, 4 yards at a trot, and 6 yards at a gallop. The rate of march of the leader and the guide should not be so rapid as to make it im-

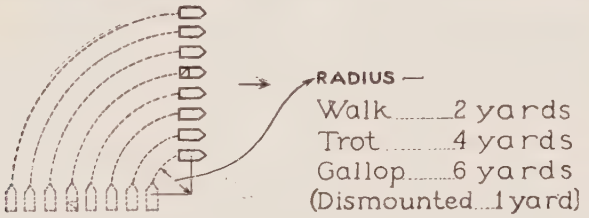


PLATE 4. Being in Line, to Change Direction.
(1. *Right (left) turn,* 2. *MARCH,* 3. *Forward,* 4. *MARCH or* 3. *Squad,* 4. *HALT.*

practicable for the troopers on the marching flank to preserve their alignment on the guide during the turn. If the leader be in front, the guide moves in the trace of the leader during the turn as well as before and after the turn. The leader indicates the direction to be taken after the turn.

Dismounted, the turn is executed so that the pivot trooper marches on the arc of a circle with radius of 1 yard, either in quick or double time. In executing the turn dismounted the guide so regulates the length of his step that the *trooper on the marching flank* can keep the regular step corresponding to the gait at which the turn is made. The other troopers regulate their steps accordingly, maintaining the cadence and their alignment and interval with respect to the guide. If the turn be terminated by the commands, 3. ***Forward,*** 4. ***MARCH,*** all the troopers resume the regular step at the fourth command. (See Plate 4.)

Being in Line, to Wheel by Fours into Column. 1. ***Fours right (left),*** 2. ***MARCH.***

The fours move simultaneously, each wheeling 90° to the right on a movable pivot. In each four, the trooper on the marching flank moves at the gait of march, or the ordered gait, and, while keeping touch toward the pivot, is the guide during the movement. The pivot trooper, conforming to the movement of the marching flank, turns his horse to the right on the forehand, the forehand moving on the arc of a circle with radius of 1 yard for all gaits except the gallop. At the gallop this radius is 3 yards.

The other troopers keep touch toward the pivot while dressing on the marching flank.

Upon completion of the wheel, all fours move forward at the ordered gait, dressing to the right, and maintain a distance of 4 feet between fours.

The movement dismounted is executed on the same principles except that the movement is made on a fixed pivot, the pivot man turning strictly in his place;

the man on the marching flank maintains the full step, moving on the arc of a circle with the pivot man as the center; the men dress on the marching flank shortening their steps according to their distances from it, and keep their intervals from the pivot.

Upon completion of the wheel, the men of each four take the full step, and maintain a distance of 92 inches between fours.

Being in Column of Fours, to Wheel by Fours into Line. 1. ***Fours right (left),*** 2. ***MARCH.***

The four wheel as explained in the preceding paragraph, and when the fours are united in line the squad moves forward in the new direction dressing on the guide.

To Wheel About by Fours. 1. ***Fours right (left) about,*** 2. ***MARCH.***

Each four wheels about 180°, and upon completion of the movement the fours move forward in the new direction dressing on the leader of the squad when in line or the guide of the four when in column.

Being in Column, to Change Direction. 1. ***Column right (left),*** 2. ***MARCH.***

The leading element executes right turn, through a change of direction of 90°. The succeeding elements move forward and turn on the same ground as the leading element. (See Plate 5).

Column half right (half left) is similarly executed by a change of direction of 45°. ***Column right (left) about*** is executed by a change of direction of 180°.

To make a slight change of direction: ***Incline to the right (left).***

Being in line, to wheel by fours into column and change direction at the same time: 1. ***Fours right (left),*** 2. ***Column right (left),*** 3. ***MARCH.***

Being in Line, to Form Column of Fours to the Front. 1. ***Column of fours,*** 2. ***MARCH.***

The left (right, if the leader is in that four) four moves at the ordered gait straight to the front. The right four starts to move as in ***Fours left,*** decreasing

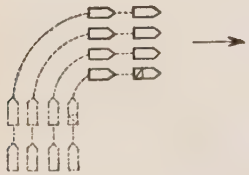


PLATE 5. Being in Column, to Change (1. *Column right (left),* 2. *MARCH.*)

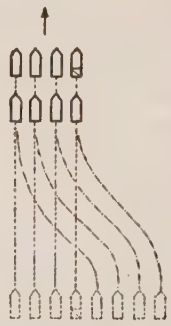


PLATE 6. Being in Line, to Form Column of Fours to the Front. (1. *Column of fours,* 2. *MARCH.*)

the space until the leading four has partly cleared, when, by a movement approximating an oblique, it enters the column so as to follow in the trace of the leading four at 4 feet distance. (See Plate 6).

In the execution of the movement *dismounted,* the left four moves forward and the other four executes ***Fours left, column right,*** and follows the leading four at 92 inches distance. The leading four takes four short steps just after it clears the other four, then resumes full step.

Being in Column of Fours, to Form Line to the Front. 1. ***Line,*** 2. ***MARCH.***

The leading four marches straight to the front at the gait of march. The rear four obliques to the right (or left if the squad leader be in that four) at an in-

creased gait, until opposite its place in line when it marches to the front. Upon arriving abreast of the leading four the rear four takes the gait of the guide of the squad. (See Plate 7).

Being in Line, or in Column of Fours, to Form Column of Twos, or Troopers. 1. ***Column of twos (troopers)***, 2. ***MARCH.***

Nos. 1 and 2 of the base four move to the front at the ordered gait. Nos. 3 and 4 of that four keep their horses straight at the next slower gait until their

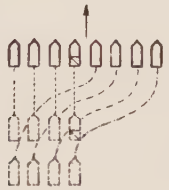


PLATE 7. Being in Column of Fours, to Form Line to the Front.
(1. *Line*, 2. *MARCH.*)

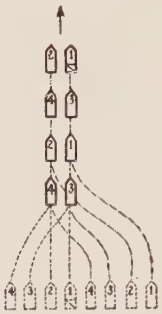


PLATE 8. Being in Line, to Form Column of Twos.
(1. *Column of twos*, 2. *MARCH.*)

horses' heads are passed by the croups of the horses of the right two, when they oblique to the right, and follow the leading two at 4 feet distance. Nos. 1 and 2 of the other four move to the front in the same manner in time to take place in column, and follow in the trace of the preceding two. Nos. 3 and 4 of the second four move forward in time to follow the right two of that four at 4 feet distance. (See Plate 8).

Column of troopers is formed by similar principles from line, column of fours, or columns of twos. (See Plate 9).

Dismounted, to form ***Column of twos,*** the leader's four moves by twos in a

PLATE 9. Being in Column of Fours, to Form Column of Troopers.
(1. *Column of troopers*, 2. *MARCH.*)

PLATE 10. Being in Column of Troopers, to Form Column of Fours.
(1. *Column of fours*, 2. *MARCH.*)

manner similar to that described for the mounted movement. The other four executes a half wheel toward the leader's four and then breaks into column of twos in time to take proper place, following the preceding twos at 40 inches.

Column of troopers is executed by similar principles. The distance between troopers in column of troopers dismounted is 14 inches.

Being in Column of Twos (or Troopers) to Form Column of Fours. 1. *Column of fours,* 2. *MARCH.*

The leading two march straight to the front at the ordered gait. Nos. 3 and 4 oblique to the left until uncovered and then march up at an increased gait and abreast of Nos. 1 and 2. The twos of the succeeding four march forward at the increased gait and form fours, as explained for the first four.

The *Column of troopers* forms *Columns of fours* by similar principles. (See Plate 10).

Being in Column of Twos (or Troopers) to Form Line. 1. *Line,* 2. *MARCH.*

The twos, or troopers, of the first four move up at an increased gait and form a four as prescribed for forming fours. The elements of the second four likewise move up and form a four in its proper place on the line.

Exceptional Movements. For riding track drills, marching recruits, or other purposes, *Column of twos,* or *Troopers,* may be formed from line by the commands: 1. *Column of twos (troopers),* 2. *From the right (left),* 3. *MARCH.*

This is a successive movement. The right two moves straight to the front. Each succeeding two moves to the front and turns to the right in time to follow in trace of the preceding two at the proper distance.

To re-form line from a column of twos, or troopers, formed in this way, the column is headed in the direction it is desired to face and the command is given: 1. *Left (right) front into line,* 2. *MARCH.* The leading element moves forward. The other elements oblique to the left at the gait of march unless an increased gait is indicated in the command so as to take their places successively on the line on the left of the leading element. The leading element is halted in order to complete the movement unless an increased gait is indicated for the other elements.

Extended-Order Drill.

In extended-order drills the troopers habitually march at ease, but keep on the alert so as promptly to conform to the indications of the leader and the movements of the guide.

The squad, deployed as foragers, or in flock, is marched to the front and halted, obliques, resumes the original direction, executes changes in gait and changes of direction, by the commands prescribed for the squad in line.

The appropriate substitution of skirmishers for foragers is made in the com-

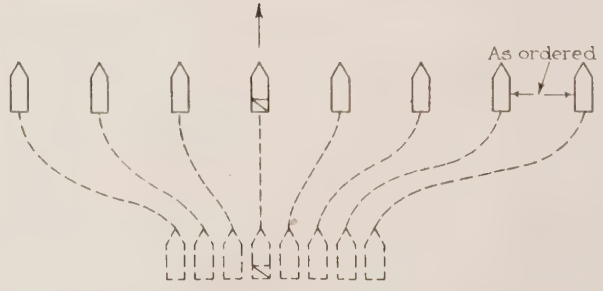


PLATE 11. Being in Line, to Form as Foragers.
(1. *As foragers,* 2. *At (so many) yards,* 3. *MARCH.*)

mands for movements in extended order, dismounted. The skirmishers move at a run to their positions on the line of skirmishers.

Except for mounted pistol attacks in hastily prepared actions and for forming a dismounted line of skirmishers in emergencies, the interval between foragers or skirmishers must always be stated in the command. There is no normal in-

terval. The interval varies to fit the situation. It is usually not more than 10 nor less than 3 yards for foragers; for skirmishers it is seldom less than 5 yards nor more than 10.

Being in Line to Form as Foragers. 1. *As foragers,* 2. *At (so many) yards,* 3. *MARCH.*

The guide moves forward at the gait of march or gait ordered. The troopers on the right of the guide move obliquely at an increased gait to the right front; those on the left obliquely to the left front. The troopers take position abreast of the guide in the same order as in line and at the intervals stated in the command. (See Plate 11).

In the excution of the corresponding *dismounted* movement, at the commands: 1. *As skirmishers,* 2. *At (so many) yards,* 3. *MARCH,* the troopers move to their places at a run.

Being in Column of Fours, Twos or Troopers, to Form as Foragers. 1. *As foragers,* 2. *At (so many) yards,* 3. *MARCH.* Deployment is made according to the principles for formation of line in close order. The troopers whose place on the line is on the left of the guide must open out to the left to gain the indicated intervals. Those whose place is on the right of the guide open out to the right. All troopers move by the shortest route to their positions. By watching the guide of the squad, the troopers will be able to estimate accurately the direction in which they must move. (See Plate 12).

In the corresponding movement *dismounted,* the troopers move to their places at a run.

Being Deployed as Foragers, to March to a Flank. 1. *By the right (left) flank,* 2. *MARCH.*

Each trooper turns 90° to the right and marches in the new direction. When the interval between the foragers is 3 yards, this movement will result in a column of troopers at 4 feet distance.

When the interval between the foragers is less than 3 yards, the squad is in a

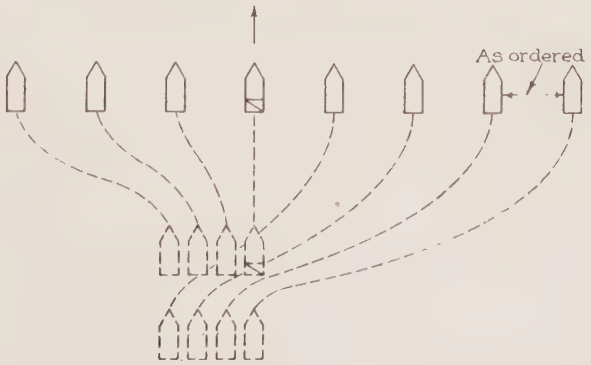


PLATE 12. Being in Column of Fours, to Form as Foragers
(1. *As foragers,* 2. *At (so many) yards,* 3. *MARCH.*)

formation approximating line in close order, and, to form a column of troopers, close-order methods should be used.

Dismounted, this movement is to the flank and can be executed from a line of skirmishers at any interval.

The line of foragers may be resumed by again marching to the flank by the use of corresponding commands and methods.

Being Deployed as Foragers, to March to the Rear. 1. *Troopers left about,* 2. *MARCH.*

Each trooper executes an about to the *left.* To march again to the front, the same command is given.

Being Deployed as Foragers, to Assemble. 1. *Assemble,* 2. ***MARCH.***

The leader, faced in the desired direction, moves forward at the desired gait, or halts. The other troopers close in upon the leader at an increased gait, and form *line* in their normal positions.

The assembly may be made in column by indicating the desired formation to the troopers as they start to assemble.

The difference between the assembly and the rally is as follows:

The assembly is made in line or other indicated formation. It is made at steady gaits, and the troopers always take their normal positions in the rank in the indicated formation.

The rally is made always in line. It is made at gaits as rapid as possible consistent with control of horses and absence of confusion. The troopers form line, not necessarily in their normal places, but in any order that will quickly accomplish the purpose. They aim to group themselves equally on both sides of the leader.

Being in Line, or Line of Foragers, to Form Flock. 1. ***Flock.*** 2. ***MARCH.*** The leader moves forward at the gait of march or gait ordered. The troopers on the right of the leader disperse in an irregular group to his right and rear, those on the left to his left and rear, with not less than 10 and not more than

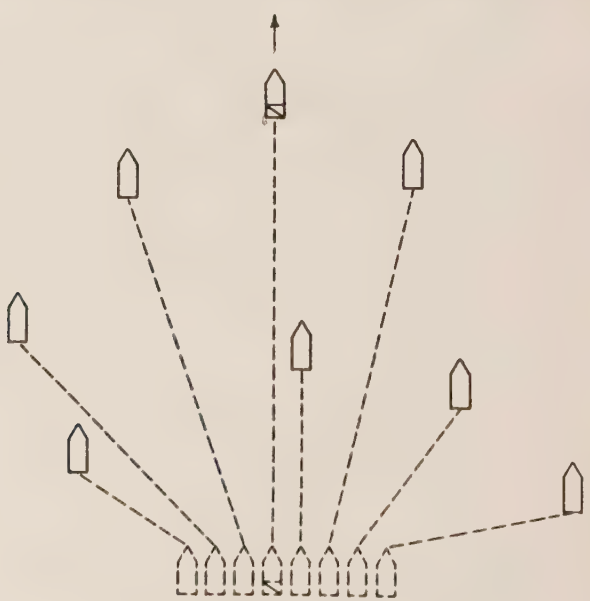


Plate 13. Being in Line, to Form Flock.
(1. *Flock,* 2. *MARCH.*)
Note: All individuals are separated by intervals and distances of not less than 10, or more than 20 yards.

20 yards' distance and interval between troopers. All troopers move at an increased gait and by the shortest route to their positions. The leader, from a position in advance of the center of the squad, leads and controls the flock. (See Plate 13).

Being in Column of Fours, Twos, or Troopers, to Form Flock. 1. ***Flock,*** 2. ***MARCH.*** Dispersion is made according to the principles for formation of line in close order. The troopers in the set of fours to which the leader belongs form an irregular group to his left and rear, those in the other set of fours similarly, to his right and rear, with not less than 10 and not more than 20 yards'

distance and interval between troopers. All troopers move at an increased gait and by the shortest route to their positions. (See Plate 14).

Being in Flock, to Execute Various Movements. The squad, dispersed in flock, marches to the flank or rear, assembles, rallies, and dismounts to fight on foot by the same commands and means as those prescribed for the squad deployed as foragers.

Being in any Formation, or in Disorder, to Rally. ***RALLY.***

The leader takes position at any point of moves in any desired direction and at any gait that will permit the movement to be executed. The troopers ride rapidly toward the leader and form line in any order on his right and left. If the leader so desires, he places himself in front of his squad, designating a guide to follow him. The squad being rallied counts fours promptly.

The rally, dismounted, is always executed at a run.

To Follow the Corporal. Being assembled or deployed to march the squad without unnecessary commands, the corporal, or leader, places himself in front of it, designates a guide and commands: ***FOLLOW ME.***

The guide follows the leader at about 3 yards; the other men conform to the movements of the guide, maintaining their relative positions in the squad in any formation ordered by the leader.

To Extend the Squad in Depth. 1. ***Fours (twos, or troopers) at (so many) yards distance,*** 2. ***MARCH.***

This movement may be useful in crossing a fire-swept area.

The leader indicates the point where the squad is to be reassembled. The fours (twos, troopers) move out successively in the order prescribed for a column.

Dismounting to Fight on Foot.

Before dismounting to fight on foot the squad is habitually formed in column of fours.

In this drill No. 4 is the horse holder for the set of fours. No. 2 or No. 3 may be the horse holder when so directed by the leader who must always give such directions before giving the command ***To fight on foot.***

In order to link horses as prescribed in these regulations when dismounting to fight on foot the link strap is habitually adjusted as follows: The link strap is attached to the off snaffle ring, and is passed through the near snaffle ring and snapped to the buckle on the near cheek piece. As thus adjusted the tension comes on both snaffle rings and prevents the snaffle bit from pulling through when linked mobile. When linked in couples, the trooper pulls the link back through the near snaffle ring so that the link strap is attached only to the off snaffle ring and fastened to the saddle of the other horse, as described below.

In the absence of the link strap, the horses may be fastened together by passing the snaffle reins through the head halter ring and tying them in a slipknot so that the horses' heads shall be about two feet apart.

When there is one horse holder for each set of fours, the horses are said to be mobile.

When the horses are so linked or fastened, or have so few horse holders that they can not be moved without difficulty from one position to another, the horses are said to be immobile. For example, all horses of the squad may be linked in a circle and left to the care of one horse holder; or this horse holder may hold the horses of Nos. 4 by the reins. If there is sufficient space in which to have the horses under shelter or screened, one of the best and quickest methods of securing the horses, in order to use the full fire power of the squad, is to ***Link in couples.***

The led horses should be as near the dismounted line as a protected situation will allow. If it is necessary to leave them in any place distant from the firing line, an escort must be left with them.

The led horses, when fastened so as to be mobile, must be drilled to lead at all gaits, and in changing direction.

In passing from a mounted to a dismounted formation, the troopers, if armed with the rifle, form with rifles in their hands unless otherwise indicated by the leader.

Being in Column of Fours, to Dismount to Fight on Foot, Horses Remaining Mobile. 1. *To fight on foot,* 2. ***ACTION RIGHT (LEFT).***

At the first command all the troopers open out as in prepare to dismount, and Nos. 1, 2, and 3 dismount; No. 3 passes his snaffle reins over his horse's head, faces about, gives them to No. 4, who holds them at such length that he can best control the horse; No. 4 now moves his horse's shoulders to the right, to straighten him out in column; No. 2 disengages the link snap, faces toward the rear, seizes the halter ring of No. 3's horse with his right hand, pulls his horse's head

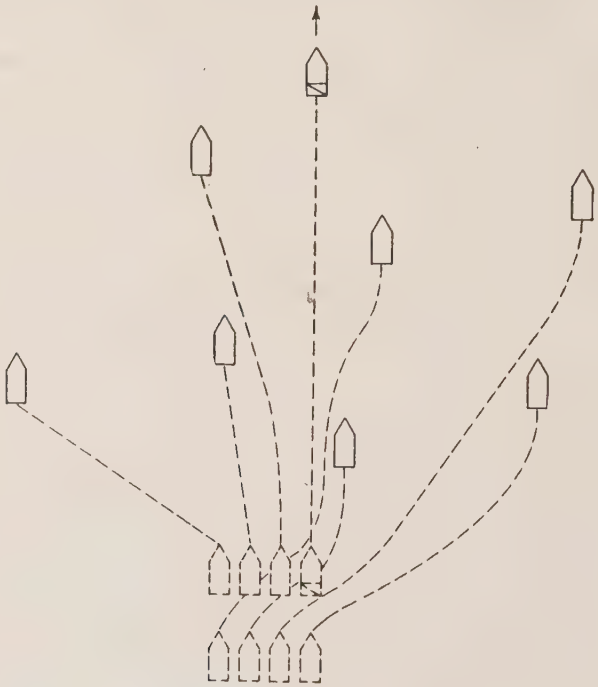


PLATE 14. Being in Column of Fours, to Form Flock.
(1. *Flock,* 2. *MARCH.*)

inward and with the left hand, back up, engages the snap in the halter ring; No. 1 executes the same with No. 2's horse; the reins of Nos. 1 and 2, and the curb bit reins of No. 3, should be placed behind the pommel, and the left stirrup crossed over the reins in front of the pommel.

At the second command, the dismounted troopers of each four form facing to the front, in their normal order, one yard to the front of their horses' heads and five yards to the right (left) of the column of horses; the rear fours close in column to wheeling distance on the leading four. (See Plate 15).

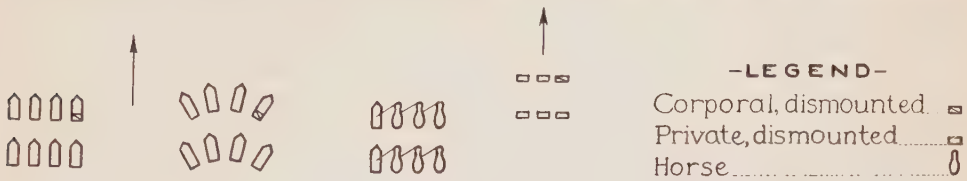
In emergencies, a dismounted line of skirmishers may be formed facing in any direction, without waiting for the normal column to be first formed, by the commands: *To fight on foot,* 2. ***AS SKIRMISHERS TO THE RIGHT (LEFT, FRONT, REAR).***

In such case the leader, on dismounting, runs to the position where he desires the center of the line of skirmishers to rest, and indicates by signals and voice

the exact direction the line is to face; the troopers form as skirmishers on the right and left of the leader, at intervals of 5 yards unless otherwise indicated.

One-half of the squad may be dismounted by the commands: 1. ***Nos. 1 and 3 (or Nos. 2 and 4),*** 2. ***DISMOUNT,*** 3. ***ACTION RIGHT (LEFT).***

To Link in Couples. The squad being mounted in any formation, the leader commands: ***LINK IN COUPLES.*** All halt, if marching, and the troopers open



Being in Columns of Fours. 1. *To fight on foot.* 2. *ACTION RIGHT.*

PLATE 15. To Fight on Foot, Led Horses Mobile.

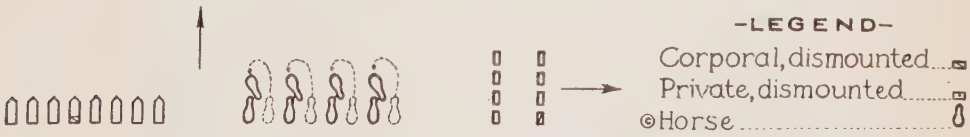
out if in column, or odd numbers ride forward if in line, as to dismount; each odd-numbered trooper then turns to the *left about* so as to face the trooper with which he is to couple, No. 1 and No. 2, No. 3 with No. 4. All dismount and each odd-numbered trooper leads his horse along the right side of the horse of the corresponding even-numbered trooper. Each horse is secured by linking, or tying the snaffle reins, if there be no link strap, to the cantle ring of the saddle on the other horse. (See Plate 16).

A noncommissioned officer or trooper out of ranks or a trooper of an incomplete two fastens his horse to either horse of the nearest couple. A trooper is usually left in charge of the horses.

As soon as he has secured his horse the leader runs to the point at which he desires the formation to be made and indicates the desired formation.

Other methods of securing the horses immobile are carried out deliberately by giving the necessary instructions.

Being Dismounted to Fight on Foot, to Mount. The leader assembles his squad and marches it to the vicinity of the led horses; or he has the led



Being in Line. *LINK IN COUPLES.*

PLATE 16. To Fight on Foot, Led Horses Immobile (Linked in Couples).

horses brought up to the squad. He may command: ***STAND TO HORSE.*** The troopers unlink and take the position of stand to horse and the squad may then be mounted when desired.

If the leader commands: ***MOUNT,*** the troopers move rapidly but quietly to their horses, and, without noise or excitement, unlink and mount.

Additional Movements.

To Take Intervals (Dismounted). Being in line at the halt, dismounted: 1. ***Take intervals to the right (left),*** 2. ***At (so many) yards,*** 3. ***MARCH,*** 4. ***Squad,*** 5. ***HALT.*** At the command ***MARCH,*** all face to the right and the leading trooper steps off; the other men step off in succession, each following the preceding trooper at the prescribed number of yards. At the command ***HALT,*** given when all have their intervals, all halt and face to the front.

Being at intervals, to assemble the squad: 1. ***Assemble to the right (left),*** 2. ***MARCH.*** The trooper on the right (left) stands fast. The other troopers face to the right (left), close by the shortest line and face to the front.

To Take Distances (Mounted or Dismounted). Being in line mounted at a halt and fours having been counted: 1. ***Front take distance,*** 2. ***MARCH,*** 3. ***Squad,*** 4. ***HALT.*** At the command ***March,*** No. 1 of each four marches straight to the front; No. 2 marches straight to the front when No. 1 has a distance of 3 yards; No. 3 and No. 4 move off in succession in like manner; the command ***HALT*** is given when No. 4 has his distance.

To form line again: 1. ***Form,*** 2. ***RANK.*** No 1 of each four stands fast; Nos. 2, 3, and 4 move up into their intervals and halt.

Being in line dismounted at a halt and fours having been counted, the movement is executed by the same commands and means as when mounted except that the distance is 4 paces instead of 3 yards.

To Stack and to Take Arms. Three rifles only are used to make the stack; rifles not so used are, in this connection, termed loose rifles.

Being in line in single rank at a halt: ***STACK ARMS.*** No. 3 steps back and covers No. 2; No. 2 grasps his rifle with the left hand, at the upper band, and rests the butt between his feet, barrel to the front, muzzle inclined slightly to the front and opposite the center of the interval on his right, the thumb and forefinger raising the stacking swivel; No. 3 then passes his rifle, barrel to the rear, to No. 2, who grasps it between the bands with his right hand and throws the butt about 2 feet in advance of that of his own rifle and opposite the right of the interval. At the same time he allows the right hand to slip to the upper band, the thumb and forefinger raising the stacking swivel, which he engages with that of his own rifle. No. 1 raises his rifle with the right hand, carries it well forward, barrel to the front, the left hand guiding the stacking swivel, engages the lower hook of the swivel of his own rifle with the free hook of that of No. 3; he then turns the barrel outward into the angle formed by the other two rifles and lowers the butt to the ground so that it will be to the right of and against the toe of his right shoe. No. 2 lays loose rifles on the stack; No. 3 resumes his place in line. When each man has finished handling rifles, he takes the position of attention. The instructor may then rest or dismiss the squad, leaving the arms stacked. On reforming, the men take their places in rear of the stacks.

Being in line in double rank at a halt, each even number of the front rank executes the movements prescribed for No. 2 in single rank, each even number of the rear rank the movements prescribed for No. 3 in single rank, and each odd number of the front rank the movements prescribed for No. 1 in single rank. Loose rifles are laid on the stacks by the even numbers of the front rank.

Being in line in single rank behind the stacks: ***TAKE ARMS.*** No. 3 steps back and covers No. 2; No. 2 returns the loose rifles, then grasps his own rifle with the left hand, the rifle of No. 3 with his right hand, grasping both between the bands. No. 1 grasps his rifle in the same way with the right hand. No. 1 disengages it by raising the butt from the ground, and then turning the rifle to the right, detaches it from the stack. No. 2 disengages and detaches his rifle by turning it to the left, and then passes the rifle of No. 3 to him. No. 3 resumes his place in line. All resume the order.

Being in line in double rank behind the stacks, the loose rifles are returned by the even numbers of the front rank, each even number of the front rank executes the movements prescribed for No. 2 in single rank and each odd number of the front rank the movements prescribed for No. 1 in single rank.

Loadings and Firings.

General Rules. The commands for loading and firing are the same whether standing, kneeling, sitting, or lying down.

The instruction in firing is preceded by a command for loading.

Loadings and firings are ordinarily executed from line in single rank and skirmish line only.

Rifles having been ordered loaded, are kept loaded without command until the command ***Unload,*** or ***Inspection arms,*** fresh clips being inserted when the magazine is exhausted.

The aiming point or target is carefully pointed out. This is habitually done after announcing the sight setting. Both are indicated before giving the command for firing. The designation of the target may be omitted when the target appears suddenly and is unmistakable, but the range must always be announced, the command ***Battle sight*** being given when it is not desired to have the sight set.

The command for range serves as a preparatory command for firing; it insures the simultaneous opening of fire and the full effect of surprise.

The target or aiming point having been designated, such designation need not be repeated until a change is necessary.

Troops are trained to continue their fire upon the aiming point or target designated until a change is ordered.

If the men are not already in the position of load, that position is taken at the announcement of the range. Skirmishers not in a firing position either at a halt or in movement, takes such position at the command announcing the range.

To Load. Being in line or skirmish line at a halt: 1. ***With dummy (blank or ball) cartridges,*** 2. ***LOAD.*** At the command ***Load*** each trooper faces half right and carries the right foot about 12 inches to the right to such position as will insure the greatest firmness and steadiness of the body; raises or lowers the rifle and drops it into the left hand at the balance, left thumb extending along the stock, muzzle at the height of the breast and, if armed with the 1903 rifle, turns the cut-off up. With the right hand he turns up the bolts and draws it back; takes a loaded clip and inserts the end in the clip slots; places the thumb on the powder space of the top cartridge, the fingers extending around the rifle and tips resting on the magazine floor plate; forces the cartridges into the magazine by pressing down with the thumb; removes the clip; thrusts the bolt home, turning down the handle; turns the safety lock to the "safe" and carries the hand to the small of the stock.

A skirmish line may load while moving, the rifles being held as nearly as practicable in the position of ***load.***

If kneeling or sitting, the position of the piece is similar. If kneeling, the forearm rests on the left thigh. If sitting, the elbows are supported by the knees. If lying down, the left hand steadies and supports the piece at the balance, the toe of the butt resting on the ground, the muzzle off the ground.

For reference, these positions (standing, kneeling, and lying down) are designated as that of ***load.***

For instruction in loading: 1. ***Simulate,*** 2. ***LOAD.*** Executed as above described, except that the "cut-off" remains "off" (model 1903 rifle) and the handling of the cartridges is simulated.

The recruits are first taught to simulate loading and firing. After a few lessons, dummy cartridges may be used. Later blank cartridges may be used.

The rifle, model 1903, may be used as a single loader by training the magazine "off." The magazine may be filled in whole or in part while "off" or "on" by pressing cartridges singly down and back until they are in the proper place. The use of the rifle as a single loader is, however, to be regarded as exceptional. The model 1917 rifle can not be used as a single loader.

To Unload. Being in line or skirmish line: ***UNLOAD.*** Take the position of load, turn the safety lock (model 1903 rifle) up (if armed with the model 1917 rifle, turn the safety lock to the front) and move bolt alternately back and forward until all the cartridges are ejected. After the last cartridge is ejected

the chamber is closed by first thrusting the bolt forward slightly to free it from the stud holding it in place when the chamber is open, pressing the follower down and back to engage it under the bolt, and then thrusting the bolt home. The trigger is then pulled. The cartridges are then picked up, cleaned, and returned to the belt, and the rifle brought to the order.

To Set the Sight. Being in any firing formation: ***RANGE, ELEVEN HUNDRED (EIGHT FIFTY),*** etc., or ***BATTLE SIGHT.*** The sight is set at the elevation indicated. The instructor explains and verifies the sight settings.

To Fire by Volley. Being in any firing formation: 1. ***Ready,*** 2. ***AIM,*** 3. ***Squad,*** 4. ***FIRE.*** (For ceremonial purposes.)

At the command ***Ready,*** turn the safety lock to the "ready" and half face to the right, and place the feet one or two feet apart. At the command ***AIM,*** raise the rifle with both hands, butt held firmly against the shoulder, left hand well under the rifle, left hand grasping the rifle at or in front of the balance, rifle resting in the palm of the left hand, right elbow at the height of the shoulder, right cheek held firmly against the stock as far forward as it can be placed without straining. The rifle is raised 30 degrees from the horizontal or, if ordered, at the horizontal. The left eye is closed, the right eye looking through the notch of the rear sight. At the command ***Fire,*** the trigger is squeezed rapidly; the rifle is then lowered to the position of ***load*** and loaded.

To continue the firing: 1. ***Aim,*** 2. ***Squad,*** 3. ***FIRE.***

Each command is executed as previously explained. ***Load*** (from the magazine) is executed by drawing back and thrusting home the bolt with the right hand, leaving the safety lock turned up to the "ready."

To Fire at Will. Being in any firing formation: ***FIRE AT WILL.***

Each man, independently of the others, comes to the ready, aims carefully and deliberately at the aiming point or target, fires, reloads, and continues the firing until ordered to suspend or cease firing.

To fire a designated number of rounds: ***ONE (TWO, FIVE, ETC.) ROUNDS FIRE AT WILL.***

Each man fires the designated number of rounds, reloads, and holds the rifle in a position of readiness.

To increase (decrease) the rate of fire in progress the instructor shouts or signals: ***FASTER (SLOWER).***

To Suspend Firing. The instructor blows a long blast of the whistle and repeats it if necessary, or commands: ***SUSPEND FIRING.***

Firing stops; rifles are held loaded and locked, in a position of readiness for instant resumption of firing, rear sights unchanged. The men continue to observe the target or aiming point, or the place at which the target disappeared or at which it is expected to reappear. ***Suspend firing*** is used for short pauses or to steady the men.

This whistle signal may be used as a preliminary to ***Cease firing.***

To Cease Firing. The instructor signals or commands: ***CEASE FIRING.*** Firing stops; rifles not already there are brought to the position of ***load;*** those not loaded are then loaded; sights are laid and rifles are locked and brought to the ***order.***

Cease firing is used for long pauses, to prepare for changes of position.

Commands for suspending or ceasing fire may be given at any time after the preparatory command for firing, whether the firing has actually commenced or not.

CHAPTER III.

THE CAVALRY RIFLE PLATOON.

Formations and Evolutions of Platoon Drill.

The platoon is the smallest unit commanded by an officer, and is an important unit of combat.

The men of the troop, except the first sergeant, noncommissioned officers with special functions, and troopers of special grades, are assigned to platoons by the captain. The men and horses assigned to platoons should be kept permanently assigned, if possible. Permanently assigned platoon leaders are held responsible by the captain for the training and appearance of the men and horses, and the care of the equipment of their platoons.

The management of the platoon and its effectiveness are dependent upon the grouping of the men into squads under the immediate control of the noncommissioned officers, who are held responsible for the discipline and order in camp and quarters, and are trained as leaders of groups for battle. There are as many corporals in the platoon as there are squads. Two sergeants are assigned to the platoon, the senior as platoon sergeant and the other as sergeant file closer. One extra private is provided for duty as platoon orderly.

The platoon of Cavalry usually contains three squads, but the system is applicable to a platoon of any number of squads. Squads are numbered permanently in the troop, 1st, 2d, 3d, 4th, 5th, etc. Their relative position in ranks in the platoon is also referred to by numbers. In line, they are referred to from right to left as the 1st squad, 2d squad, 3d squad; in column, they are referred to from head to rear as the 1st squad, 2d squad, 3d squad.

Both the close-order and extended-order drills require squad leadership and teach the men in the squads to regard the squad as a unit. Thus, the principle of group action and leadership is taught from the first, because the evolutions and movements of the platoon are accomplished through the same agencies that must conduct the groups in combat. In the training of the Cavalry rifle platoon, every soldier in each squad must be practiced in leading his squad in all evolutions of close and extended order and in combat exercises. By this method the replacing of leaders who have fallen out for any reason becomes easy. In training, this method helps in the selection of noncommissioned officers.

Precision in the movements of the platoon is dependent upon the precision of the squads that compose it.

In the platoon drill any formation can be taken directly from any other.

Formations of the Platoon. The platoon in line is simply a number of squads assembled in line without interval. In column the platoon is simply a number of squads assembled in column without distance. (See Plate 17).

In line, the platoon leader is posted 3 yards in front of the guide or leader of his base squad. This guide is the guide of the platoon in line. The platoon leader may, if necessary, place himself in front of the guide of any squad who then becomes the guide of the platoon. If the platoon is reduced to two squads, the prescribed position of the platoon leader in line places him in front of his right or left squad. When deemed expedient, and always at ceremonies, the platoon leader places himself in front of the exact center of his platoon. In this case he selects a center trooper for center guide of the platoon, and announces *(SO-AND-SO), CENTER GUIDE.* This procedure is only temporary and is effective only so long as the platoon remains in line. For any subsequent evolution the platoon leader must resume his proper position in

front of the leader of the base squad. At the preparatory command or signal for such evolution the function of the center guide ceases.

The platoon sergeant is posted 3 yards in rear of the center of the platoon and acts as a file closer. The sergeant file closer is posted several yards to the left of the platoon sergeant. If there be an extra file closer he is posted as the platoon commander may direct. The platoon orderly is posted as a file closer unless needed to complete, or fill a vacancy in, a squad.

In column, the platoon leader is posted 3 yards in front of No. 1 of the leading element who is guide of the platoon. No. 1 of the leading element is normally the squad leader of the leading squad. When the platoon is in the troop in a column of fours, twos, or troopers, the platoon leader rides only 4 feet in front of the guide of his platoon. The platoon sergeant, in column, rides in rear of the last element at 4 feet distance. The sergeant file closer rides on the left of the platoon sergeant. If there be an extra file closer he rides on the left of the sergeant file closer, or wherever directed.

To Form the Platoon. The platoon is formed normally in line. It may be formed in column if desired. Squads are formed as prescribed, and in such a place and manner that they will be combined in the desired platoon formation in the order of their permanent designation, or as indicated by the platoon sergeant.

In garrison, or whenever the stable or picket lines and horse equipment are at some distance from the barracks or camp of the men, the platoon is formed dismounted by the platoon sergeant and, after verification, is marched to the stables. If alone, it is marched by the platoon sergeant; if in the troop, the troop is marched by the first sergeant with the platoon sergeants in command of their platoons.

The principles of the dismounted formations are the same as those described for the mounted formations with the necessary and obvious alterations. It is to be noted that where in mounted formations the command ***LEAD INTO LINE*** is used, the command for dismounted formations is ***FALL IN.***

When the platoon has reached the stables, the sergeant commands: ***SADDLE AND LEAD OUT.*** The platoon is reformed as soon as the horses are saddled and led out of the stables.

The platoon sergeant, mounted, facing the position where he wishes the platoon to form, commands: ***FORM PLATOON.*** The squad leader of the base squad stations himself at ***Stand to horse.*** 6 yards from the platoon sergeant and facing him, and cautions his men to ***LEAD INTO LINE.*** The other squad leaders similarly form their squads on the right and left of the base squad. All squads count fours.

If the platoon sergeant desires the platoon to form in column, he commands: ***FORM PLATOON IN COLUMN OF FOURS (TWOS OR TROOPERS)*** The platoon forms column on the base squad. The other squads form in column behind the base squad.

If the platoon sergeant desires to form in any special order he indicates the relative order after giving his command.

If on account of the exigencies of the service the men are not previously assigned to squads and it is necessary to divide the platoon into new squads for a formation, the platoon sergeant designates a trooper for the right of the line, indicating where the right of the platoon is to rest, and causes all the troopers, except the noncommissioned officers, to ***LEAD INTO LINE FROM THE RIGHT.*** The noncommissioned officers form in line 6 yards in rear of the platoon. The platoon sergeant calls the roll as prescribed for the squad then orders the platoon to ***CALL OFF.*** The troopers count aloud consecutively from right to left. The platoon sergeant causes Nos. 5, 13, 21, 29, etc., according to the number of men in line, to rein back and lead into line on the left. He then designates a noncommissioned officer to lead into line in each one of these

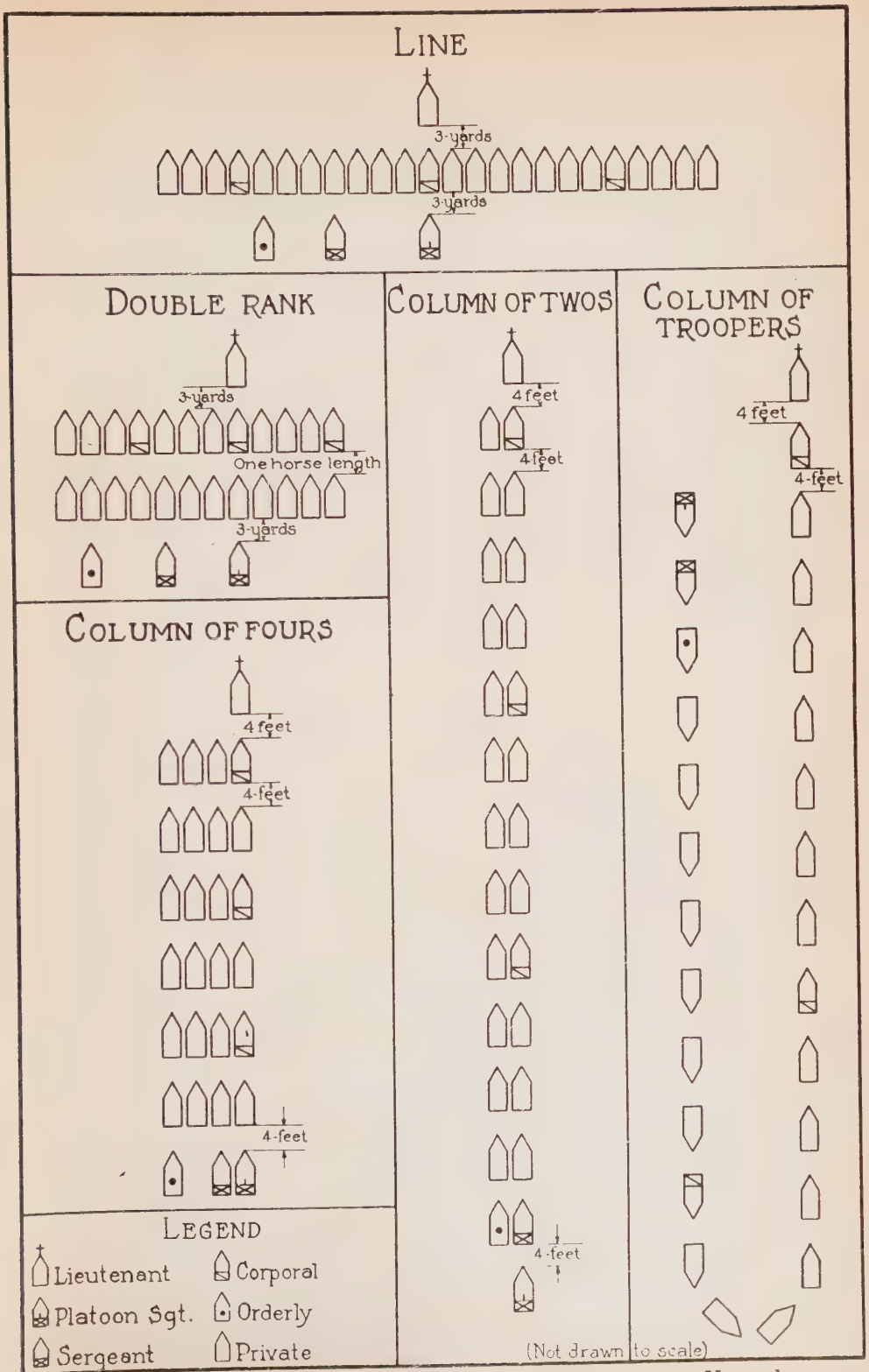


PLATE 17. Close-Order Formations of the Cavalry Rifle Platoon, Mounted.

places and announces in turn the name of the leader of each of the new squads, 1st, 2d, 3d, etc., cautioning the men to look about them and notice the squads to which they belong. He then commands: ***SQUADS COUNT FOURS.*** Each squad leader sees that the fourth man on his right commences to count fours. In the absence of enough noncommissioned officers privates are selected for duty as squad leaders.

If, after dividing the platoon into squads of 8 men each, there are less than 4 men and more than 1 man remaining over, they are all assigned to one squad as an additional and incomplete four. If 1 man remains over he is assigned as an extra file closer. If four or more men remain over another squad is formed according to the principles for forming squads as prescribed in "The Cavalry Squad."

If the permanent squad formation has been kept, but there are absentees from more than one squad, thus making several incomplete fours, it is better to assign the men of the incomplete fours to fill vacancies in squads so as to leave not more than one incomplete four in the platoon. If there be but one man available for the incomplete four, he should be assigned as an extra file closer; but no more than one extra file closer should be permitted.

After the squads have formed in the platoon, the squad leaders verify the presence of their men (if verification has not been previously made), and the platoon sergeant commands: ***REPORT.*** Each squad leader in turn, commencing on the right, salutes ***(except when at stand to horse)*** and reports. ***(Such) squad present,*** or ***(so-and-so) absent.*** If dismounted and armed with rifles, the squad leaders remain at the order arms while reporting. If no verification is required or if it has been previously made, the squad leaders do not report. After squads are formed and necessary adjustments made, the platoon sergeant faces about, salutes, and reports to platoon commander, ***Sir, the platoon is present or accounted for,*** or ***Sir, (so-and-so) absent.*** He then takes his post at the trot (quick time if dismounted).

If the formation is in the troop commanded by the first sergeant, the platoon sergeant salutes and reports, ***(Such) platoon, present or accounted for*** or ***(Such) platoon (so-and-so) absent.***

When no verification is required, the report is ***Sir, the platoon is formed,*** or if to the first sergeant, ***(Such) platoon is formed.***

During the formation the platoon commander or leader takes post mounted several yards behind the platoon sergeant, and when the platoon sergeant has reported the former returns the salute, mounts the platoon, and takes his proper post, or does whatever is necessary.

If the formation be dismounted, the platoon sergeant, if armed with the rifle, carries his rifle at the right shoulder during the formation.

General Rules for Movements Executed by the Platoon. The platoon mounts, and dismounts, rests, is dismissed, aligned, executes the march to the front, backward, and oblique, halts, changes direction, moves fours right, or left, or about, by the same commands and means that are prescribed for the squad, substituting when necessary the word platoon for squad. Also, the platoon in column of twos or troopers forms fours as prescribed for a squad; the platoon in column of fours column of twos or troopers as prescribed for the squad.

A platoon in line habitually forms column of fours, twos, or troopers by breaking to the direction of march from its base squad in line. The leader may use any squad as the base squad, but he habitually uses for this purpose his center squad, or one near the center if the number of squads be even.

A platoon habitually forms line in either close or extended order from column of fours, twos, or troopers by a fan-shaped deployment. When the line is to be formed facing in a direction oblique to the existing direction of march, the head of the column is turned and marched in the new direction before deployment is ordered. But if from a column of fours a deployment is required in a direction

differing from the direction of march by 90° or more, and there is not time, or room, for changing the direction of march of the head of the column and executing a fan-shaped deployment, line may be formed by wheeling by fours.

Close Order Drill.

Being in Line, to Form Column of Fours, Twos, or Troopers. The platoon leader places himself 3 yards in front of the guide of the base squad, or indicates the base squad by voice, and commands: 1. ***Column of fours (twos, troopers), 2. MARCH.*** (See Plate 18.)

The base squad forms ***Column of fours*** to the front and follows the platoon commander. Each of the other squads forms ***Column of fours*** to the front in time to take its place in column by the shortest route, at the ordered gait of march, and without loss of distance. The order of the squads in column is as follows: The base squad, the next squad on the left of the base squad in line, the

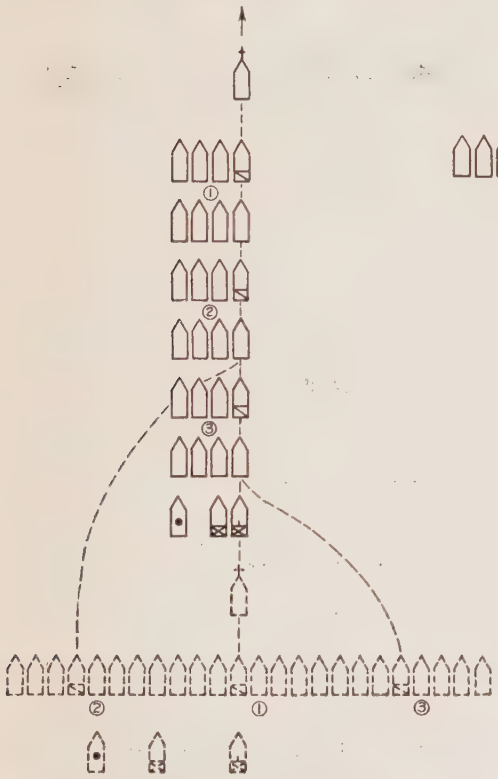


PLATE 18. Being in Line, to Form Column of Fours.
(1. *Column of fours,* 2. *MARCH.*)

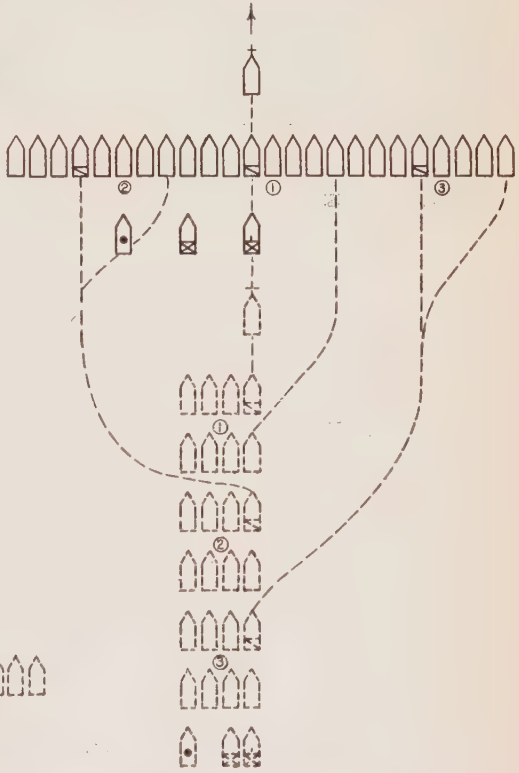


PLATE 19. Being in Column of Fours, to Form Line.
(1. *Line,* 2. *MARCH.*)

next squad on the right of the base squad in line, the second squad on the left of the base squad in line, the second squad on the right of the base squad in line and so on.

Being in Column of Fours, Twos, or Troopers, to Form Line. 1. ***Line,*** 2. ***MARCH.*** (See Plate 19.)

The leading squad forms ***Line*** and follows the platoon commander, its guide or squad leader following in the trace of the platoon commander at 3 yards distance.

The second squad is conducted by its leader at an increased gait to the left front, and marches up in its original column formation to form line on the left

of the leading squad. It continues in its original formation until its leading element is about 3 yards in rear of the correct place in the platoon line, when it forms line to the front, the leading element reducing the gait gradually so as to avoid blocking the movements of the element next in rear and so as to have the gait of the base squad when it arrives abreast thereof. The rear elements continue at the increased gait until opposite their place in line, when they gradually reduce the gait, as explained for the leading element; the squad then conforms to the gait of the guide of the platoon and all troopers maintain their alignment upon him.

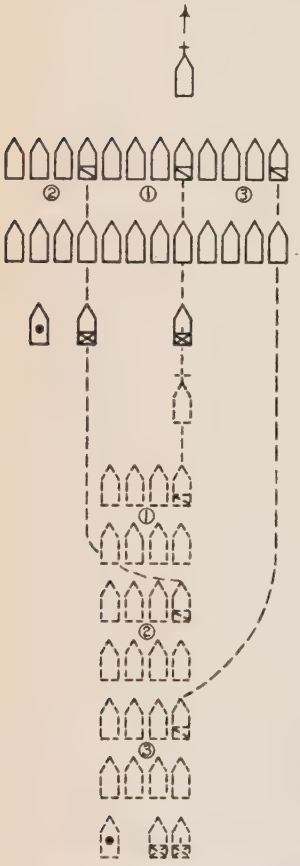


PLATE 20. Being in Column of Fours to Form Double Rank.
(1. *Double rank*, 2. *MARCH.*)

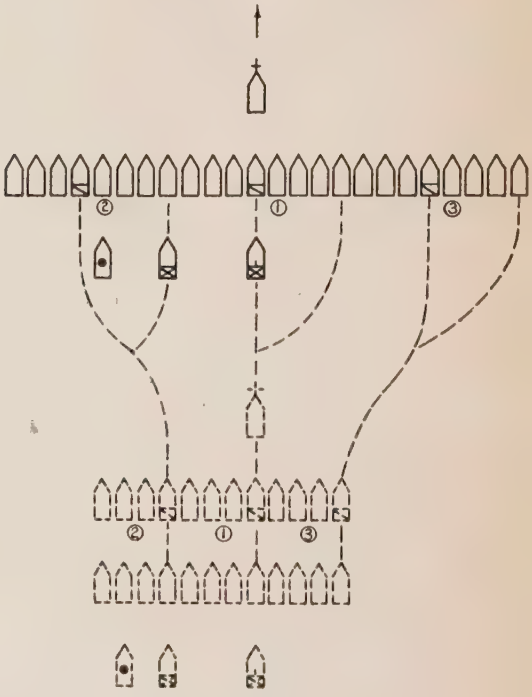


PLATE 21. Being in Double Rank, to Form Single Rank.
(1. *Line*, 2. *MARCH.*)

The third squad is similarly conducted to take its place on the line to the right of the leading squad. If there be more than three squads the fourth squad moves to the left, the fifth to the right, and so on.

All squad leaders must conduct their squads so as to march by the shortest routes accurately to their proper places and so as to maintain precision in all their movements.

Being in Line or Column, to Form Double Rank. 1. ***Double rank,*** 2. ***MARCH.*** (See Plate 20.)

If in ***Line,*** each squad is formed by its leader in column of fours to the front; the base squad moves straight forward, or follows the platoon leader, and the other squads close in toward the base, so that their leading fours form a line in the front rank and their second fours form line in the rear rank. No. 1 of the

rear four of the base squad becomes the guide of the rear rank. The rear rank increases its distance from the front rank until the distance is about one horse-length.

If in ***Column of fours,*** the leading squad continues to march in column of fours, and the succeeding squads are conducted in column of fours to their places at the left and right of the leading squad, in the same order as in forming line.

The platoon in double rank executes all the movements prescribed for the single rank. In executing changes in direction involving the turn or half turn, the troopers of the rear rank incline outward during the turn so as to gain ground toward the marching flank; those nearest the pivot move their horses' haunches toward the marching flank, so as to clear the ground for any following unit. Double rank is formed dismounted by the same means, except that the rear rank does not increase the distance from the front rank.

Being in Double Rank, to Form Single Rank. 1. ***Line,*** 2. ***MARCH.*** (See Plate 21.)

The base squad continues to the front and forms ***Line*** to the front as soon as the other squads have opened out sufficiently. The other squads are conducted so as to open out just enough to allow their rear fours to move up into the line, and all form line to the front.

Double rank applies only to a line formation. Whenever the platoon changes its formation from double rank to column or any other formation, the platoon is to be considered as having changed to a single rank idea, and any subsequent movements are to be made with a single rank idea unless double rank is commanded.

Extended-Order Drill.

Being in any Formation, to Form as Foragers. 1. ***As foragers,*** 2. ***At (so many) yards,*** 3. ***MARCH.*** (See Plate 22.)

If the platoon be in ***Column,*** the squads are conducted at an increased gait by their leaders to their places on the line of foragers, by the same principles that govern the formation of ***Line*** from column of fours, twos, or troopers. The base squad deploys at once; the other squads move in column to the left and right front so as to have room to deploy, and as soon as the squad leaders are opposite the points they judge to be their positions in the line of foragers, they move to the front and deploy their squads, the leading elements moving up abreast of the base squad and the rear elements remaining in a gait one degree faster than that of the base squad until they arrive on the line.

If the platoon is in ***Line*** or ***Double rank,*** the base squad deploys as foragers as soon as the other squads have opened out to the right and left sufficiently to permit the deployment. The other squads change direction by half turns to the right or left, and when the guides or leaders of the squads are nearly opposite their positions in the line of foragers they change direction again so as to have their squads marching squarely to the front, and then deploy as foragers.

When the deployment as foragers is incomplete, each trooper regulates his march on his own squad leader. The squad leaders, riding in the line, act as guides of their squads, the leaders of squads other than the base regulating on the base squad. It is to be noted that this principle of alignment differs from that of the platoon in line in close order, wherein all troopers align themselves on the center guide of the platoon.

Being in Any Formation, to Form Line of Flocks. 1. ***Line of flocks,*** 2. ***MARCH.*** (See Plate 23.)

When the platoon is in column, squad leaders, following the principles that govern the formation of line from column of fours, twos, or troopers, conduct their squads to their places on the line of flocks so that flank squads have an interval of not less than 20 yards from the base squad and an echelonment of not less than 10 yards in rear thereof. The base squad disperses into flock at once; the other squads move in column to the left and right front so as to afford suffi-

cient room in which to disperse, their dispersion commencing as soon as they have uncovered the base squad. Squads in rear of the base squad maintain the increased gait until they arrive at their places on the line of flocks.

When the platoon is in ***Line*** or ***Double rank,*** the base squad disperses into flock as soon as the other squads have opened out to the right and left sufficiently to permit the dispersion. The other squads change direction by half turns to the right or left at an increased gait, their dispersion commencing as soon as the change of direction has been effected. The flank squads maintain the increased

PLATE 22. **Being in Column of Fours, to Form as Foragers.**
(1. *As foragers,* 2. *At (so many) yards,* 3. ***MARCH.***)

gait until they arrive on the line of flocks established by the base squad, with an interval of not less than 20 yards and an echelonment of not less than 10 yards.

When in any other formation, the platoon disperses into line of flocks by the most convenient and rapid method.

When the dispersion into line of flocks is completed, each trooper regulates his march on his own squad leader, being careful to maintain his position in flock. The squad leaders, riding in advance of their flocks, act as guides of their squads. The leaders of squads other than the base regulate on the base squad.

Being in any other formation, the platoon disperses into 1. ***Column of flocks,*** 2. ***MARCH.*** (See Plate 24.)

If the platoon is in column, the leading squad moves forward, dispersing into flock at once; the other squads deploy as foragers, dispersing into flock as soon as they obtain a distance of not less than 20 yards.

If the platoon is in ***Line*** or ***Double rank,*** the base squad moves forward,

dispersing into flock at once; the other squads deploy as foragers, on the right or left troopers, as the case may be, dispersing into flock in time to gain their proper position in column at a distance of not less than 20 yards.

Being in any other formation, the platoon disperses into ***Column of flocks*** by the most convenient and rapid method.

To Extend the Platoon in Depth. Extension in depth is affected by the

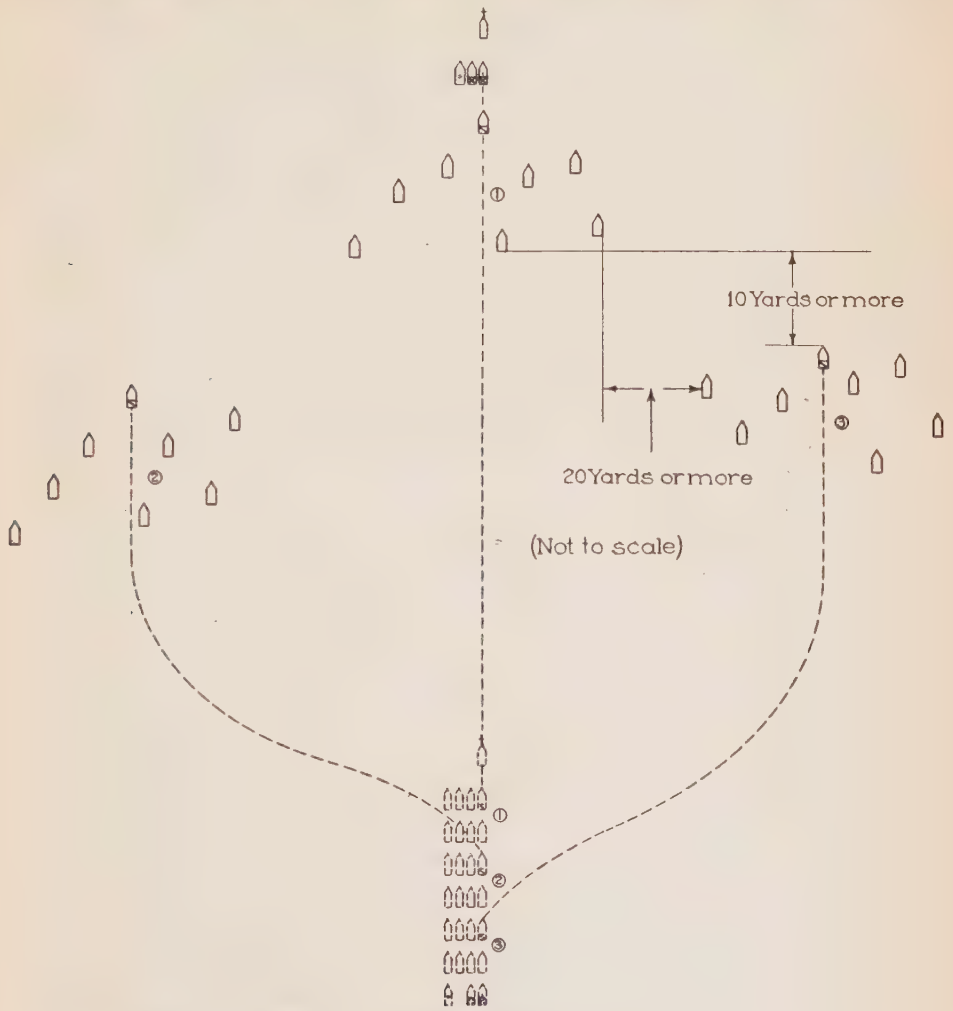


PLATE 23. Being in Column of Fours, to Form Line of Flocks.
(1. *Line of flocks*, 2. *MARCH.*)

commands: 1. ***Squads, (fours, twos, or troopers),*** 2. ***At (so many) yards distance,*** 3. ***MARCH.***

This movement is useful in passing or leaping obstacles and, under some circumstances, in crossing fire-swept areas. It may also be used to effect a deployment in depth. The base squad moves out first, followed by the others in their proper order.

If the platoon commander desires the elements to march in a particular formation he indicates his wishes after giving the first command. For example: 1. ***Squads in line (or, as foragers),*** 2. ***At (so many) yards distance,*** 3. ***MARCH.***

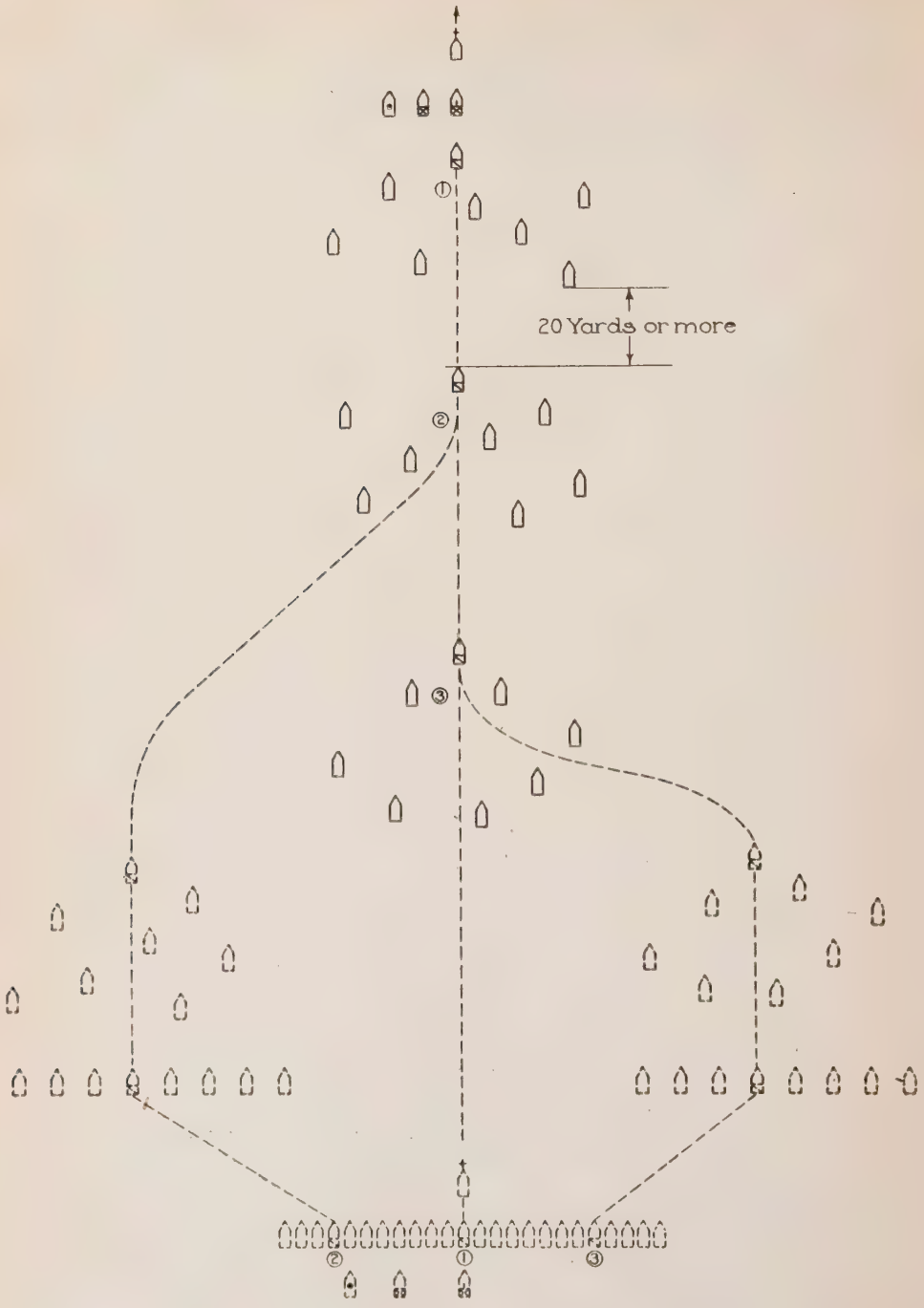


PLATE 24. Being in Line, to Form Column of Flocks.
(1. *Column of flocks.* 2. *MARCH.*)

Note: The base squad assumes Flock formation at once. The other squads deploy (on their inner flank) as foragers, then form Flock in time to gain their proper places in the column.

To Avoid Observation by Airplanes. ***DISPERSE BY SQUADS.***

The squads are led in different directions at rapid gaits until they are at least 50 yards apart, whereupon, all halt, dismount, and remain motionless. If bushes, trees, haystacks, houses, etc., are about, the squads should seek to halt near these objects.

It is also desirable to halt in the shade of objects if there be such shade. This movement may also have application in case of unexpected artillery fire or attack by airplanes.

Being Deployed as Foragers, or Extended, or Dispersed, to Assemble. 1. ***Assemble,*** 2. ***MARCH.***

The squads are assembled and then marched to the point indicated by the platoon commander, and the platoon is formed as the latter may indicate.

Order out of Confusion. To practice *bringing order out of confusion,* the platoon commander causes the troopers of the entire platoon to mix indiscriminately. He then commands: 1. ***Assemble in (such formation).*** 2. ***FOLLOW ME.*** The squad leaders each command: 1. ***(Such) squad assemble,*** 2. ***FOLLOW ME.*** They assemble their squads so as not to interfere with each other, and as soon as their men, or most of them have joined their proper squads, the leaders conduct them toward the platoon commander and place them in such a way as to take the platoon formation indicated by the latter.

Being in any Formation, or in Disorder, to rally. ***RALLY.***

If in disorder the troopers ride at a rapid gait toward the platoon commander and form in line behind him. In order to facilitate the rally, the platoon commander should continue to move forward at a slow pace during the movement. The troopers may form in any order.

If in a formation in which the troopers are grouped in squads, they rally while remaining in such groups, even though the individual troopers may form in any relative order in their squads.

Being in any Formation, to Form Line of Squads. 1. ***Line of squads,*** 2. ***At (so many) yards,*** 3. ***MARCH.***

The base squad follows the platoon commander. The other squads are conducted to their positions abreast of the base and at the interval ordered. The squads habitually take the formation of the base squad, but the squad leaders may change the formation of their squads to suit the ground in accordance with their own judgment.

In this formation the squad leader should designate a guide for his squad, and should lead from a position in front of the guide as described in "The Cavalry Squad."

This formation is particularly useful in moving through thick country, broken ground, or where there are many obstacles.

Being in ***Line of squads,*** any other formation can be taken in accordance with the principles of squad leadership in the platoon.

A line of squads with squads in column of troopers is the habitual approach formation in the zone of artillery fire. To take this formation the platoon commander commands: 1. ***Line of squad columns,*** 2. ***At (so many) yards.*** 3. ***MARCH.*** (See Plate 25.)

Obstacles. When a platoon is marching in line and an obstacle is met that interferes with the advance of only a few troopers, they open out or fall back without command and resume their places after passing it. In the same way, if the obstacle is sufficiently large, a squad leader may hold his squad back to follow after the platoon, or he may lead his squad around the obstacle. For a difficult obstacle, or on a terrain covered with obstacles, the platoon commander should form line of squads or extend the platoon in depth according to the circumstances. Any means that are simple and that preserve order may be used.

The platoon should be practiced in passing obstacles of different kinds, both in line and in column.

The flexibility of the platoon and its maneuver ability are increased by platoon leading across country, a method of training to be emphasized.

Changing Formations Quickly in Awkward Directions. To practice the platoon in forming quickly in any direction and in any formation desired, the platoon being in any formation, the platoon commander suddenly rides in any

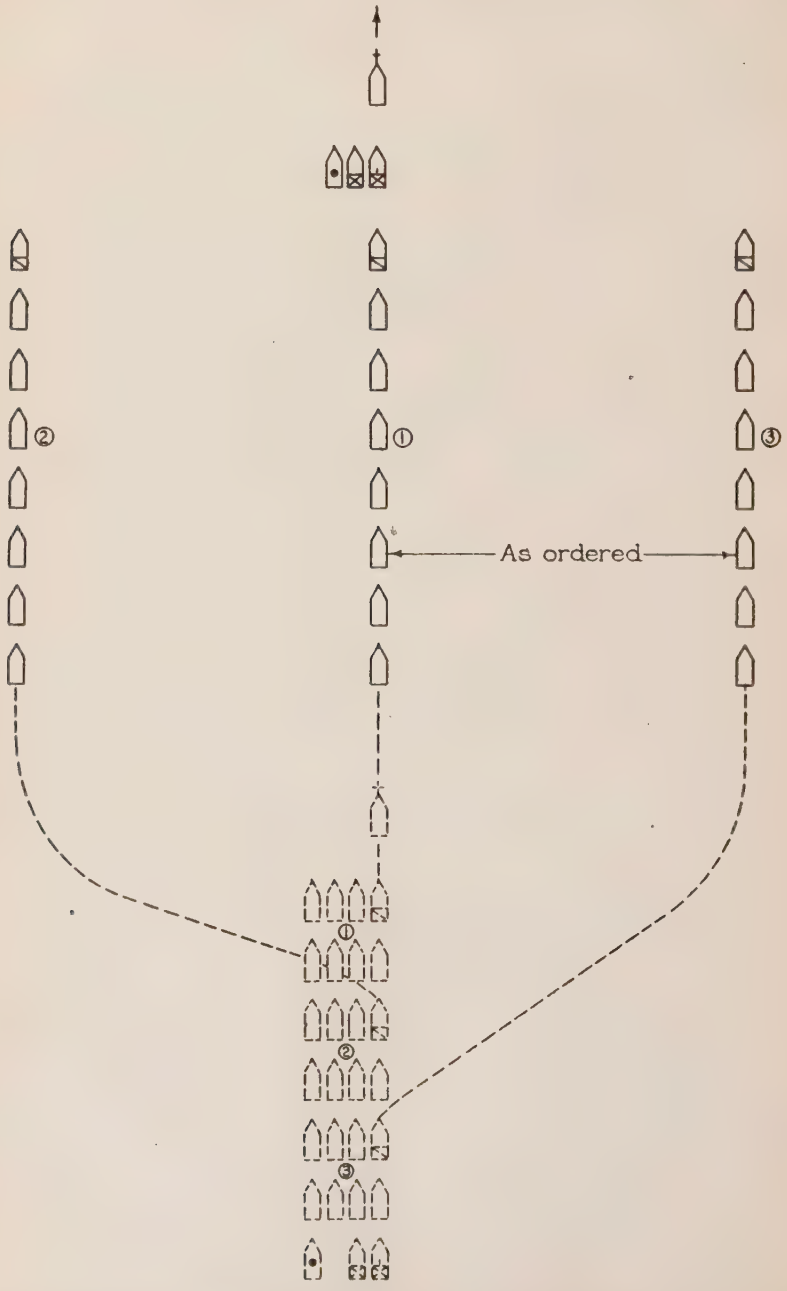


PLATE 25. Being in Column of Fours, to Form Line of Squad Columns.

Note: In this plate, the platoon is shown in line of squad columns, each squad being in column of troopers (squad column). The command, in this case, is 1. *Line of squad columns*, 2. *At (so many) yards*, 3. *MARCH*.

direction, front, right, left, rear, and commands: 1. *In (such formation),* 2. ***FOLLOW ME.*** The squads are conducted and placed by their leaders in the desired formation, the squad first arriving near the platoon commander becoming the base squad. This should be practiced frequently.

To March at Route Order. The platoon commander commands: 1. ***Route order,*** 2. ***MARCH.*** He may require his orderly or one of the sergeants to ride with him on his left if this is desirable to economize in road space or for any other good reason. Otherwise, no change is made in the formation. While the men are permitted to talk, turn their heads, and look about them, and other informalities, they must be required to ride properly, without lounging and without losing their precise relative position. Each squad leader is responsible that his squad is in proper order and that the above rules are obeyed. He must keep alert to see and transmit to his squad the signals of the platoon commander. He must see that lost distances are gained gradually and that all sudden checks are avoided. In short, he continues to conduct his squad quite as carefully and accurately as when the platoon is marching at attention.

At least one sergeant rides at the tail of the column and is responsible to the platoon commander that proper march discipline is preserved in the platoon.

To Dismount to Fight on Foot. The platoon dismounts to fight on foot by commands and methods corresponding to those prescribed for the squad, with such modifications as are noted below.

When the command is given to fight on foot it is executed by each squad. Having assembled their squads, or deployed them as skirmishers if the latter movement is ordered, the squad leaders conduct their squads by the shortest route to the point indicated by the platoon commander, and in such relative positions as to complete the platoon formation indicated.

It is important that the platoon commander and the platoon sergeant move quickly to the place where the dismounted platoon is to form. They must, therefore, not be delayed by the care of their horses. On dismounting, each passes his reins to a file closer, or links his horse to a convenient trooper's mount. The platoon orderly, in the absence of other instructions, promptly links his horse to a convenient trooper's mount, thereafter accompanying the platoon commander as runner.

In the absence of an order to the contrary, the sergeant file closer remains in charge of the led horses. He makes sure that the horses of the platoon commander and the platoon sergeant are promptly taken care of, and are promptly brought up for remounting. In the absence of the sergeant file closer, the platoon commander must designate a responsible horse-holder, or special trooper, to take charge of the led horses.

After dismounting, the platoon commander, accompanied by the platoon sergeant and the runner, moves to the desired point and waits for the dismounted squads to be formed, and then commands: 1. ***Assemble in (such formation),*** or, 1. ***As skirmishers,*** 2. ***At (so many) yards,*** 3. ***MARCH.*** The squad nearest the platoon commander, or the indicated squad, becomes the base.

CHAPTER IV.

THE CAVALRY MACHINE RIFLE SQUAD AND PLATOON.

General Considerations. The machine rifle platoon, referred to for convenience as the MR platoon, has its own drill and training which fits it to take its part in the work of the troop. The members of this platoon are instructed individually in "The Soldier, Instruction Mounted and Dismounted, With and Without Arms," quite as carefully and thoroughly as are members of rifle platoons. They must also be thoroughly instructed and practiced in "The Cavalry Squad" and "The Cavalry Rifle Platoon" as prescribed for the men of rifle platoons. The MR platoon executes the movements of rifle platoons that are obviously applicable.

In the manipulation and use of the machine rifle the men are instructed as prescribed in the authorized manuals on the subject.

The MR platoon has three squads of two machine rifles each. In each squad the guns are numbered 1 and 2. Each machine rifle is carried with a prescribed quantity of ammunition on a pack horse. The squad is accordingly divided into half squads of one gun each. Each half squad forms a gun crew and has one gunner, one assistant gunner, one carrier, one horse holder, one pack horse, and four riding horses. Each gun crew is numbered to correspond to its gun. The corporal is the gunner of gun crew No. 1; a selected private is gunner of gun crew No. 2.

The Machine Rifle Squad.

Formations of the Machine Rifle Squad. The squad is formed in column of fours as follows:

The two gunners form a two in front, the corporal on the left. Following the corporal is the horse holder of gun crew No. 1 with his led pack horse on his right. The pack horse thus follows the private gunner. The assistant gunner rides on the left of the horse holder, and the carrier rides on the left of the assistant gunner. Gun crew No. 2, less its gunner, who is riding with the corporal in front of the squad, is similarly formed in rear of gun crew No. 1. All distances are 4 feet from head to croup. (See Plate 26.)

Column of twos is formed as follows: The two gunners move forward, followed by the horse holder and pack horse of gun crew No. 1. The carrier and assistant gunner of this crew take position in rear of the horse holder and pack horse, respectively, and in the same way as do Nos. 4 and 3 of a rifle squad in forming column of twos. Gun crew No. 2 forms in a similar manner in rear of gun crew No. 1. Distances are 4 feet from head to croup.

Column of troopers is formed by the same principles, except that the pack horse must, of course, be led on the right of the horse holder, and that the gunner of gun crew No. 2 drops back to march in front of his horse holder, following gun crew No. 1. The corporal leads, followed by the horse holder, then the assistant gunner, then the carrier of gun crew No. 1. Gun crew No. 2 follows in similar formation. All distances are 4 feet from head to croup.

Line of half squads is formed as follows: Gun crew No. 1 forms column of twos to the front. The horse holder of gun crew No. 2 and his pack horse move to the right front, followed by the other two men of that crew so as to form a column of twos. This column moves up abreast of gun crew No. 1, with 3 yards interval between crews unless another interval is indicated by command. The gunner of gun crew No. 2 places himself in front of his horse holder so as to lead his crew. This places the two gunners abreast of each other with about 4 yards interval between them. Gun crew No. 1 is the base. (See Plate 26.)

Flock. To disperse the mounted squad in flock, the movement is executed as follows: The corporal moves forward at the gait of march or gait ordered. Crew No. 1 disperses in an irregular group to his left and rear, the private gunner and Crew No. 2 to his right and rear, with not less than 10 and not more than 20 yards' distance and intervals between individuals. All individuals move at an increased gait and by the shortest route to their positions. The corporal, from a position in advance of the squad, leads and conducts the flock.

Any formation can be taken from any other by simple and obvious means. *Gaits* are taken in accordance with "General Principles of the Drill," as prescribed for other units.

When the squad is in column of fours (twos or troopers) and the command is given: ***TO FIGHT ON FOOT, ACTION RIGHT (LEFT),*** the squad halts. The carrier of each crew rides forward to take his gunner's horse. The assistant gunner passes his reins to the horse holder of his crew. The gunner and assistant gunner of each crew dismount and run to the pack horse, the gunner to take the gun and the assistant to unpack the ammunition. Each gunner and his assistant then run to a position 5 yards to the right of the pack horse (or left of the assistant's horse), and 1 yard in front of the horses' heads. These two men form facing to the front with the gunner on the right.

The squad may now be closed up and marched as a column of twos, or it may be formed as a four.

The carrier of each crew, mounted and leading the gunner's horse, takes position in rear of the squad of led horses and the led horses are ready to move or to remain stationary. If they remain stationary, the carriers link their horses to the pack horses of their respective crews and prepare to carry ammunition. If led horses are to be left far in rear, the carriers may be required, after linking horses, to join their crews; in this case the carrier of a crew forms on the left of the assistant gunner.

When the squad is in line of half squads, or is part of the platoon in line, the command is given: ***TO FIGHT ON FOOT, ACTION FRONT,*** instead of *action right (or left).* It is executed as already explained for action right, except that the gunners and assistant gunners form 5 yards in front of their horses instead of on one flank.

If the squad is in column of fours (twos or troopers) and the command is given: ***To fight on foot, action front,*** the dismounted gun crew No. 1 forms, facing to the front, 5 yards in front of the pack horse. The dismounted gun crew No. 2 forms on the right of gun crew No. 1. If the squad forms column of twos or troopers gun crew No 1 always precedes gun crew No. 2, and the squad leader is charged with the conduct and leadership of his squad until the crews are separated to join R squads.

The squad may link in couples; the carrier with the gunner, the assistant gunner with the horse holder; the pack horse is linked to the horse holder's horse.

When the squad is wholly dismounted (or linked in couples), all members of the squad will be present in the dismounted ranks. Each gunner is then posted as number one of his own four (crew). In this case the squad executes the movements of rifle squads by the same commands and means.

To deploy the mounted squad as foragers the movement is executed as follows: The assistant gunner and carrier of the leading four (crew No. 1) deploy on the left of the corporal. The second four obliques to the right, and, when clear, the assistant gunner and carrier deploy on the right of the private gunner who takes his interval from and regulates on the corporal. The horse holder of each crew remains in rear of the center of his crew, and takes such a gait or pace as will permit him to follow at about 10 yards, or as may be directed.

The Machine Rifle Platoon.

Formations of the Machine Rifle Platoon. The machine rifle platoon may be formed in: Line, line of squads (or squad columns), line of half squads (or half-

squad columns), column of fours (twos, troopers), line of flocks; column of flocks.

Line is a formation in which the squads are each in column of fours, but abreast of each other with 3 yards interval between squads. (See Plate 26.)

Line of squads is the same formation as line, except that the interval between squads is discretionary and is stated in the commands of the platoon commander. In line of squad columns the squads are each in column of troopers.

Line of half squads is a formation in which the squads are abreast of each other in line of half squads with 3 yards interval between squads and half squads unless another interval is indicated by command. In line of half squad columns the half squads are each in column of troopers. (See Plate 26.)

Column of fours is a formation in which the three squads form a column, the leading squad being the base, the second and third squads following, all in column of fours with 4 feet distance throughout the column. Column of twos

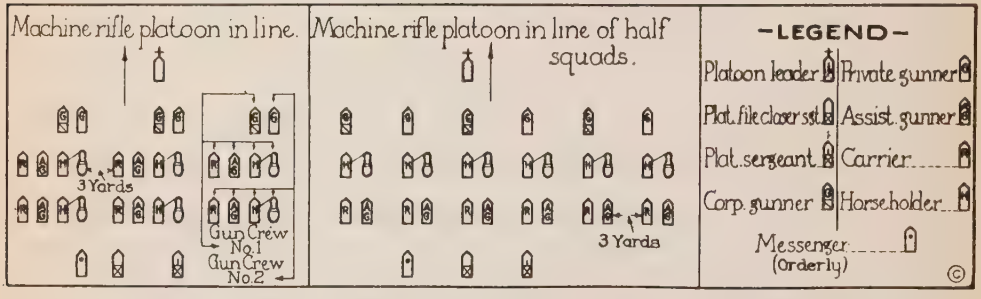


PLATE 26. The Machine Rifle Platoon in Line and in Line of Half Squads.

is a similar formation in which the squads are in column of twos. Column of troopers is a similar formation in which the squads are each in column of troopers.

Line of flocks is a formation in which the squads, each in flock, have an interval of not less than 20 yards and an echelonment of not less than 10 yards to the rear of the base squad.

Column of flocks is a formation in which the three squads form a column, the leading squad being the base, the second and third squads following, all in flock with not less than 20 yards' distance between squads.

Movements are executed by commands corresponding to the above-named formations and in accordance with the "General Principles of the Drill," as prescribed for other platoons. In accordance with these principles, deployments are made fanwise; column may be formed on any squad as the base.

The position of the platoon leader, platoon sergeant, and file closers are as prescribed for other platoons.

When the command is given ***TO FIGHT ON FOOT,*** each squad executes the command and the dismounted portion of the crews awaits further instructions from the platoon leader. The command is executed from any formation. If in any line formation the action is front; if in column the action is right or left.

The dismounted Machine Rifle platoon may be formed in column of twos, fours, or in line, and marched or deployed as are other platoons.

CHAPTER V.

THE CAVALRY RIFLE TROOP.

Principles and Formations, the Rifle Troop.

The object of these regulations is to teach the troop to act as a unit, alone or in the squadron, and to train the platoons to execute under their own leaders the will of the captain and to perform together those movements which they have learned separately.

Teamwork between the platoon commanders is a necessity. In order to have teamwork it is necessary to develop and maintain the initiative of these leaders, even at the expense of uniformity in matters not prescribed by regulations.

Organization. The cavalry rifle troop is an administrative and tactical unit commanded and led by a captain. It normally consists of a troop headquarters, 3 rifle platoons and 1 machine-rifle platoon. (See Tables of Organization, Appendix I).

The drill is equally applicable to a rifle troop of two or four rifle platoons.

Troop Headquarters. Troop headquarters consists of: The captain, the first sergeant, the stable sergeant, the mess sergeant, the supply sergeant, the troop clerk, the saddler, 2 buglers, 3 horseshoers, 3 cooks, and 4 messengers. Three pack horses, one to carry the picket line, one the cooking outfit, and one rations, are assigned to troop headquarters. In the field, an extra mount for each officer of the troop is led by members of troop headquarters.

The captain is responsible for the administration, discipline, and instruction of his troop for war. He trains the troop headquarters, supervises the training of the platoons, and is responsible that the lieutenants or other platoon leaders are competent instructors. He is the guardian of the esprit de corps of his organization.

The first sergeant is the principal enlisted assistant of the captain. In the absence of all officers, he commands the troop and is responsible for its administration, discipline, and instruction. His personality has a great influence on the general efficiency of the troop.

The stable sergeant, mess sergeant, and supply sergeant are the captain's assistants in matters pertaining to the stables, mess, and property, respectively. The captain may detail a lieutenant to supervise the work of each of these noncommissioned officers.

The troop clerk, saddler, buglers, horseshoers, cooks, and messengers perform the duties appropriate to their grade and designation.

In addition to their special duties appropriate to their grade or rating, certain members of the troop headquarters are trained and utilized for particular functions in combat.

For drill, the captain, first sergeant, stable sergeant, and one bugler have special positions assigned to them in the troop formations. The other members of the troop headquarters, when present at drill, are either formed as a detachment or used to fill vacancies in the platoons as the captain may direct. They usually attend inspections, formed as a detachment with pack horses and officers' extra mounts.

Designation of Platoons. For convenience the rifle platoons are referred to as R platoons, and the machine-rifle platoon is referred to as the MR platoon.

In whatever formation the troop may be, or in whatever direction it may be facing, the rifle platoons retain their permanent administrative designations of First Platoon, Second Platoon, etc.; for convenience at drill they will be designated when in line as right, center, or left platoon, and when in column as lead-

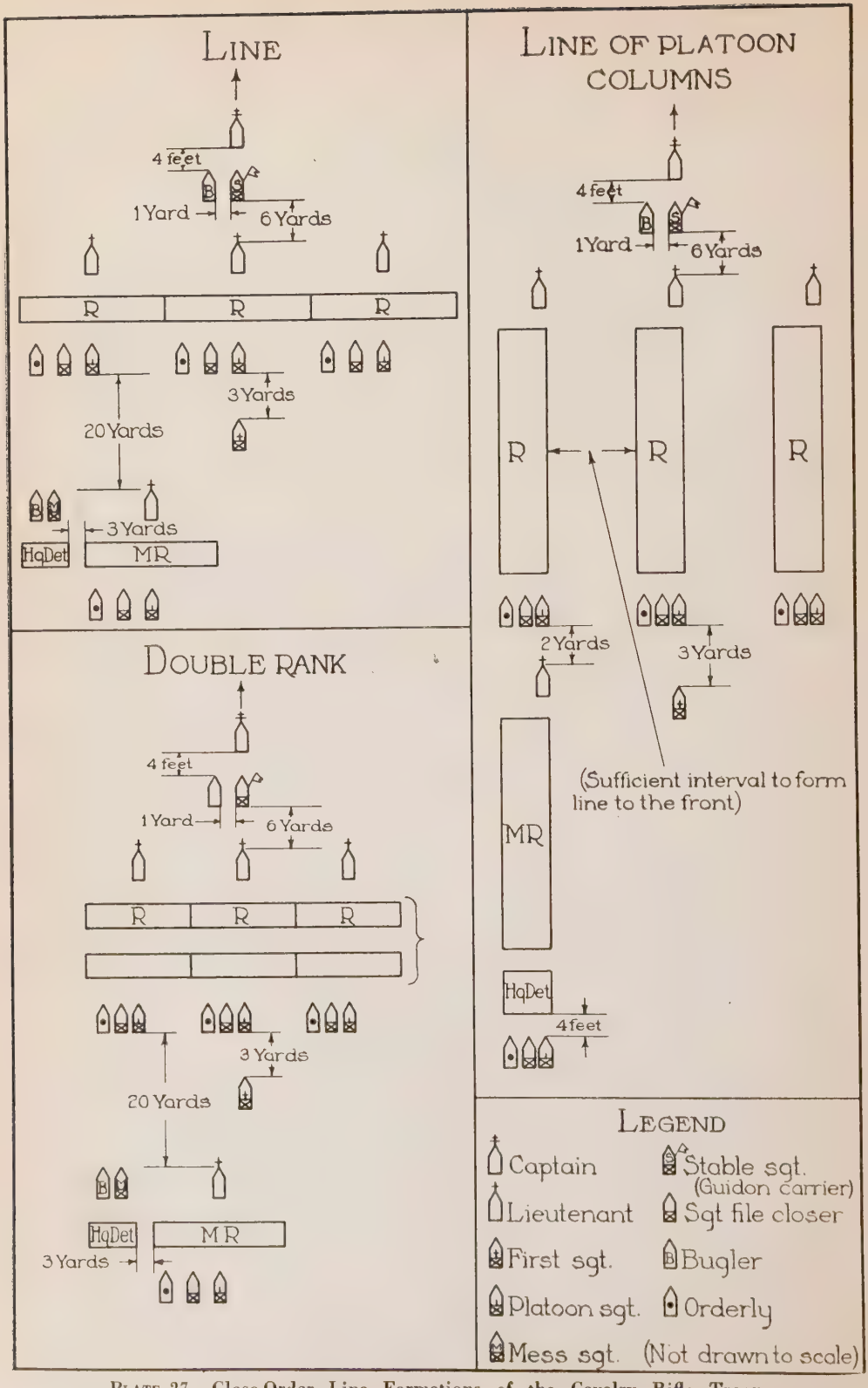


PLATE 27. Close-Order Line Formations of the Cavalry Rifle Troop.

Note: In *Line* (but not in *Double rank*), when moving, the base platoon is 3 yards in advance of the other rifle platoons.

ing, center, or rear platoon, these designations applying to their actual positions at the time in line or column.

Dismounted Formations and Drill. The formations and evolutions of the drill provided in these regulations, unless otherwise specified, apply dismounted as well as mounted, with such modifications as are obvious and necessary.

Troop Formations. Close-order formations of the troop are: Line; double rank; line of platoon columns; column of platoons, (single or double rank); column of fours (twos or troopers).

Extended-order formations are: Line of foragers; line of platoons (squads or squad columns); extension in depth; line of flocks; and column of flocks.

Line is a formation in which the rifle platoons are in line and abreast of each other without intervals, other than the trooper's ordinary interval in line, or echeloned as prescribed below. The machine rifle platoon is in line directly in rear of the left rifle platoon, at 20 yards distance. (See Plate 27.)

Double rank is similar to line, except that the rifle platoons are in double rank, and abreast of each other. (See Plate 27.)

Line of platoon columns is a formation in which the R platoons are in column of fours, and abreast of each other or echeloned as prescribed below, with intervals sufficient for the troop to deploy into line toward the direction of march. The MR platoon is in column of fours, directly in rear of the left R platoon, at a distance of 2 yards, measured between the rear element of the left R platoon and the MR platoon leader. (See Plate 27.)

Column of platoons is a formation in which each R platoon is in line or double rank and one behind another, with distances equal to platoon front less 3 yards, provided that this distance is not less than 15 yards. The MR platoon is in line behind the rear rifle platoon at a distance of 20 yards. (See Plate 28.)

In column of fours (twos or troopers), each platoon is in the corresponding formation. The distance measured between the rear element of any platoon and the leader of the platoon next in rear is 2 yards. (See Plate 28.)

Line of foragers is a formation in which the R platoons, deployed as foragers, are abreast of each other or echeloned as prescribed in the orders of the captain to suit the particular situation. Unless it receives other instructions, the MR platoon follows in any convenient and suitable formation at 50 yards distance in rear of the base R platoon.

Line of platoons is a formation in which the troop is deployed with the R platoons abreast of each other or echeloned as prescribed in orders of the captain to suit the particular situation. The platoons are in any of the prescribed platoon formations. The MR platoon follows the base R platoon at a distance of about 50 yards, or it receives special instructions from the captain.

Extension in depth is a term applied to any formation in which the platoons follow, one behind another, at distances ordered by the captain; platoon formations may be indicated in the order or left to the discretion of the platoon leaders. This term also covers a formation in which two platoons may be deployed abreast of each other while the others follow at a prescribed distance, or any formation in echelon which the captain wishes to use. The MR platoon conforms to the movement as would any R platoon in its place, unless it receives special instructions in the order of the captain.

Line of flocks is a formation in which the rifle platoons, despersed in line of flocks, are echeloned as prescribed in the orders of the captain to suit the particular situation. Unless it receives other instructions, the MR platoon follows in a similar formation at 75 yards' distance in rear of the base R platoon.

Column of flocks is a formation in which the squads, Rifle as well as Machine Rifle, are in flocks, arranged one behind another, at distances not less than 20 yards.

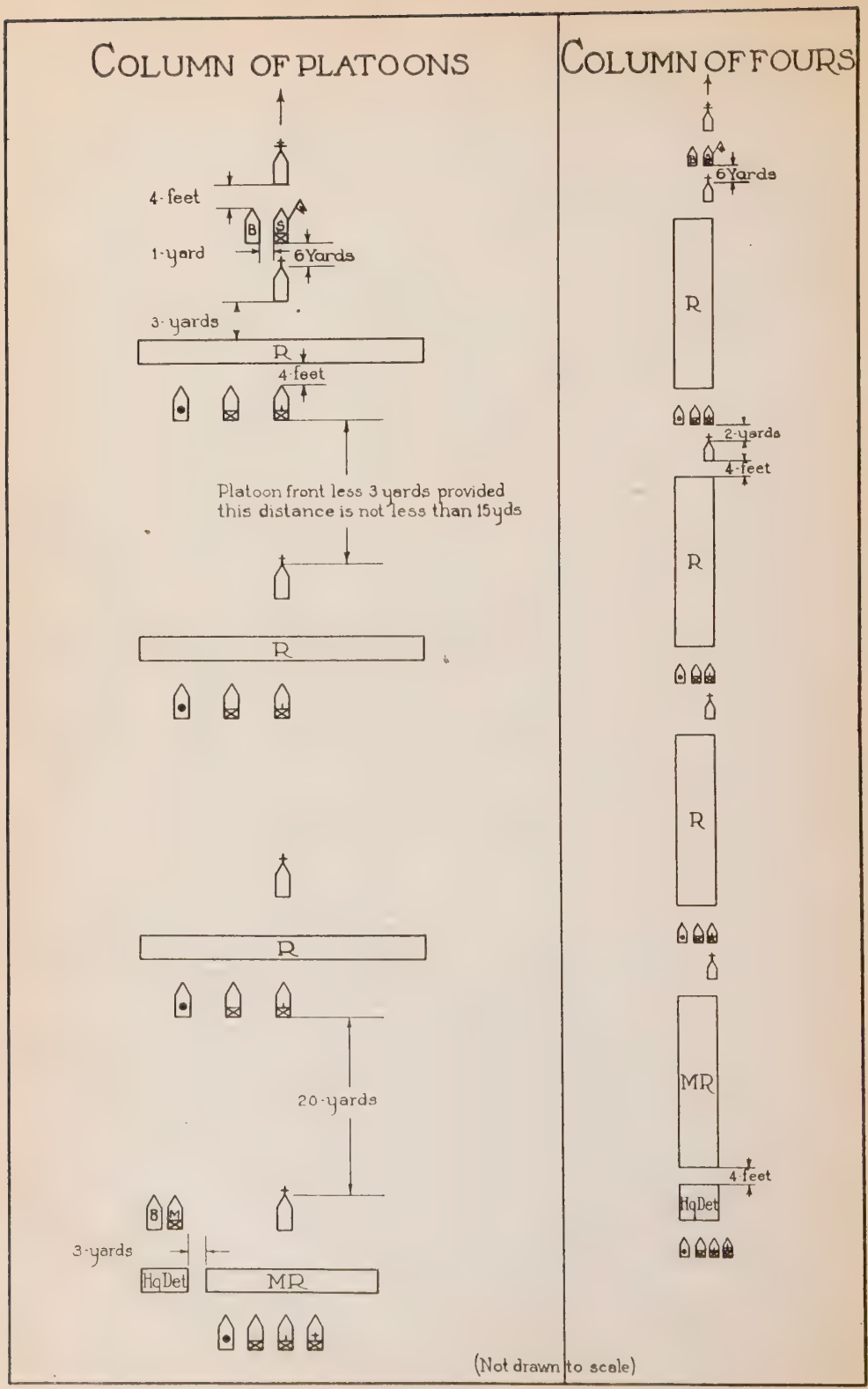


PLATE 28. Close-Order Column Formations of the Cavalry Rifle Troop.

Echeloning of Rifle Platoons. Whenever the troop advances in line, the platoons next on the right and left of the base platoon are echeloned upon the base platoon without interval other than the trooper's ordinary interval in line, and habitually at a distance of 3 yards; this will place the leader of a platoon adjacent to the base platoon on a line with the rank of the latter. A platoon not immediately adjacent to the base platoon is similarly echeloned upon the next platoon toward the base.

The platoons are not echeloned when the troop is halted, in line in double rank, or when marching backward.

When the troop, marching in line, is halted, the base platoon halts at once; each of the other platoons halts when its rank is abreast of that of the base platoon.

When the troop advances from the halt in line the base platoon moves out at once; the other platoons move out in such a manner that they will be echeloned as required above.

Whenever the troop in line is marched to the rear either by turning about by platoons or wheeling about by fours, the platoons other than the base lessen the speed of the gait until they are echeloned as prescribed.

The same principles apply to the troop in line of platoon columns, except that the platoons have the intervals between platoons required for this formation.

Posts of the Captain, First Sergeant, Guidon, Buglers, and Troop Headquarters. *Captain.* The habitual position of the captain in all close-order formations is 6 yards in front of the leader of the base platoon. In extended order he may take position as in close order or go wherever necessary.

First sergeant. The first sergeant, in any close-order line formation, is 3 yards in rear of the platoon sergeant of the base platoon. In any close-order column formation, he is on the right of the platoon sergeant of the rear platoon. In extended order he takes post as ordered by the captain.

Guidon. The guidon is carried by a noncommissioned officer (stable sergeant), who rides 4 feet in rear of the captain. When the troop dismounts to fight on foot the guidon sergeant takes charge of the led horses. In campaign the guidon must not be exposed to the observation of the enemy.

Buglers. The buglers belong to the troop headquarters. One of them habitually accompanies the captain, riding 4 feet to the rear and 1 yard to the left of the captain's horse. The other bugler rides with the troop headquarters detachment when it is present, or if he only of this detachment is present, he is attached as an extra file closer of the machine rifle platoon. He may be placed in ranks to fill a vacancy in a squad of one of the rifle platoons, or he may be placed wherever the captain wishes.

Troop headquarters. Those members of troop headquarters, present and not assigned special positions in the formation are formed into a detachment under the senior noncommissioned officer with it, which accompanies the MR platoon in close-order formations. When the troop is in *close order* the detachment takes position 3 yards to the left of the MR platoon when this platoon is in line, and 4 feet in rear of this platoon when it is in column, its formation conforming to that of the MR platoon. When the troop is in *extended order mounted* the headquarters detachment takes position as ordered by the captain.

When the troop is in *extended order dismounted,* the dismounted part of the detachment joins the captain.

For instruction or in emergencies, members of this detachment may be attached to a platoon and organized into an extra squad, or they may fill vacancies in a permanent squad. But such attachment must not affect the permanent squad organization of a platoon.

To Form the Troop. The troop is formed normally in line, but may be formed in any formation indicated in the command.

If the troop is in camp or in barracks at some distance from the picket lines or stables, the first sergeant forms it dismounted and marches it to the vicinity of the horses.

To form dismounted at the barracks, the first sergeant commands: ***FORM TROOP.*** Each of the platoon sergeants forms his platoon on its parade ground as prescribed for the platoon and in its relative position according to its permanent numerical designation. After verification of the platoons, the first sergeant places himself 6 yards in front of the platoon sergeant of the platoon selected as the base, and the other platoons if not already aligned without interval on the base platoon are dressed up on it. The first sergeant then commands: ***REPORT.*** Each platoon sergeant in turn, beginning on the right, reports as prescribed in the Cavalry Rifle Platoon. The first sergeant returns the salute of each platoon sergeant.

The first sergeant then marches the troop in column to the vicinity of the horses, and having reached the proper place commands: ***SADDLE AND FORM PLATOONS.*** The platoon sergeants cause their men to saddle and lead out of the stables. They then form their platoons in the most convenient places without interfering with each other. Unless a previous verification has been made the platoon sergeants verify their platoons, and even though a previous roll call has been made each platoon sergeant is careful to look over his squads to assure himself that all his men are again present or accounted for.

The platoons being formed, the first sergeant takes post, mounted, facing the position where he wishes the base platoon to form and commands: ***FORM TROOP.*** The platoons take position, mounted, in line or in column, as directed by the first sergeant, in the order of their permanent designation, the base platoon being formed with its rank 9 yards from the first sergeant.

If, on account of the proximity of the stables or picket lines, the previous dismounted formation is not necessary, the first sergeant commands: ***SADDLE AND FORM PLATOONS.*** The troop is then formed as described above.

In camps where little space is available the platoon sergeants see to it that their platoons are formed practically in their positions in the troop, so that no further movement is necessary to form the troop.

As soon as the platoons are in their proper positions in the troop the first sergeant commands: ***REPORT.*** The platoon sergeants, in order from right to left or head to rear, salute and report, *(Such) platoon is formed* or, in case no previous verification has taken place, *(Such) platoon, present or accounted for,* or *(Such) platoon, (so and so) absent.* After reporting each platoon sergeant goes at the trot to his post.

The first sergeant turns about and, saluting, reports *Sir, the troop is formed,* or, *Sir, the troop is present or accounted for,* or, *Sir, (so-and-so) absent.* When the captain acknowledges the salute the first sergeant goes at the trot to his position.

The platoon commanders then take their posts in front of their platoons. The platoon commanders should inspect their platoons while they are being formed, and satisfy themselves that the horses are properly saddled and that the equipments are clean and properly placed. The captain may require the platoon commanders to inspect arms before the platoons are mounted.

In the field when about to march out of camp or billets, the captain may require the platoons to remain dismounted after forming platoon, without forming troop until the proper time to march out, thus forming troop in column as they march out and dispensing with the formal formation. This may give more room for inspections by platoon commanders and save time and fatigue.

In formation of the troop, mounted or dismounted, the machine rifle platoon may be allowed to form by itself on one flank of the troop, if there is not sufficient space to form in rear of the rifle platoons.

When the troop headquarters is present, it forms as an extra squad of the

machine rifle platoon, but for verification it is reported directly to the first sergeant by the senior noncommissioned officer with it. The men in it who have special places assigned them in the troop formation take their positions as soon as the troop is reported to the captain, unless otherwise indicated by him. If the machine rifle platoon is absent from the troop formation the headquarters detachment forms in the place prescribed for the machine rifle platoon.

General Rules for Movements Executed by the Troop. The troop executes the movements of the platoon or squad which are obviously applicable, by the same commands, substituting where necessary the word ***troop*** for ***platoon.*** The captain may cause the platoons individually to execute a movement not otherwise provided for by prefixing the word ***platoons*** to the command.

A troop in any line formation habitually forms column of fours, twos, or troopers, or column of platoons, by breaking to the direction of march from its base platoon in line. The base platoon is indicated by the captain, who rides in front of its leader. The center platoon, or right center platoon if the number of platoons be even, is habitually designated as the base. But the column may be formed on any platoon as may be indicated by the captain.

A troop in column of any kind habitually forms line, or line of platoon columns, by a fan-shaped deployment. When the line is to be formed facing a direction other than the direction of march the head of the column is turned to the new direction before deployment is ordered.

When the troop is in column of fours, it may form line to a flank, when necessary, by wheeling by fours. In this case, if the march is continued, the platoons after wheeling into line close gradually to their proper intervals on the base platoon. If the march is not to be continued, as in forming line in streets, the platoons in rear of the base or leading platoon form line by wheeling by fours in succession so as to have the ordinary troopers interval between platoons. Movements involving wheeling by fours are used not only when the troop is in column but also when it is in other formations in which they are applicable, and whenever they are desirable or necessary, but they are not habitual.

In the troop any formation can be taken directly from any other formation.

Close-Order Drill.

To Form Line. 1. *Line,* 2. ***MARCH.*** If the troop is in column the base platoon, if not already in line, forms line to the direction of march and follows the captain or moves in the indicated direction. The next rifle platoon in the column changes direction half left at an increased gait and forms line if not already in that formation. It is then led to its proper place on the left of the base platoon and takes the gait of the latter. The third rifle platoon in column is conducted in a similar manner to its proper place on the right of the base platoon.

The machine rifle platoon inclines to the left at an increased gait and is conducted so as to form line 20 yards in rear of the left rifle platoon.

If in line of platoon columns, all of the platoons form line and the platoons other than the base are so led as to gain their correct positions if they do not find themselves already in those positions upon forming line.

If in any extended-order formation the platoons are assembled and then conducted so as to form line on the base platoon.

When the troop marches in line, either single or double rank, each platoon is led by its leader and conforms to the gait, pace, and direction of the base platoon whose leader follows in the trace of the captain. The platoon leaders will, without command of the captain, so lead their platoons as to pass obstacles with the greatest facility and then resume the original formation.

To Form Line in Double Rank. 1. *Double rank,* 2. ***MARCH.*** Each platoon forms double rank and is conducted to its place in the line according to the principles for forming line. The platoons are not echeloned.

Being in Line in Double Rank, to Form Line in Single Rank. 1. ***Line,*** 2. ***MARCH.*** The base platoon moves straight to the front and forms line as soon as the other platoons have been led out sufficiently to give the necessary space. The other platoons are led from the base by a slight change of direction, and as soon as they have gained sufficient space they resume the march directly to the front and form line, taking the echelon formation as prescribed under "Echeloning of Rifle Platoons."

To Form Line of Platoon Columns. 1. ***Line of platoon columns,*** 2. ***MARCH.*** The base platoon, if not already in column of fours, forms column of fours to the direction of march and follows the captain or moves in the indicated direction. The other platoons form column of fours and are led to their proper places.

To Form Column of Platoons. 1. ***Column of platoons,*** 2. ***MARCH.*** If the troop is in a line formation, the base platoon moves forward in line and follows the captain, or moves in the indicated direction. Each of the other platoons forms line, if not already in line, and, at a gait one degree slower than that of the base, awaits the proper time to take its place in the column; it then, by slight changes of direction at the gait of the base platoon, is led to its place at the prescribed distance from the platoon in front of it. The order of the platoons in column is as follows: The base platoon, the next platoon on the left of the base platoon in line, the next platoon on the right of the base platoon in line, the machine rifle platoon.

If the troop is in a column formation, such as column of fours, each platoon forms line. The base platoon follows the captain or takes the indicated direction. The other platoons, if not already in their places with the correct distances, are led to their proper positions.

To Form Column of Platoons in Double Rank. 1. ***Column of platoons in double rank,*** 2. ***MARCH.*** The same principles apply except that each platoon is formed in double rank and then led to its position.

It is to be noted that when the troop is in column of platoons in double rank and the command, 1. **Line,** 2. **MARCH** is given, the troop forms line in single rank, each platoon forming line and then being led to its position in the line.

To Form Column of Fours (Twos or Troopers). 1. ***Column of fours (twos or troopers),*** 2. ***MARCH.*** If the troop is in a line formation, the base platoon forms column of fours (twos or troopers) and follows the captain or moves in the indicated direction. Each of the other platoons forms a similar column in time to take its place in the troop column. The order of the platoons in the column is the same as prescribed in forming column of platoons.

The column of fours is a route column with distances between platoons. Therefore, if it be desired to form from line into column of fours by wheeling by fours the captain may command: 1. ***Column of fours,*** 2. ***First platoon fours right,*** 3. ***MARCH.*** The right platoon executes fours right, and the other platoons execute the same movement in time to follow with the correct distances. Column of twos or troopers may be formed directly to a flank by first forming column of fours. These methods are not normal and are only used when there is not room to march out by the normal method.

Being in column of twos or troopers, to form column of fours, the leading platoon forms fours and the succeeding platoons follow at an increased gait until they have gained the proper distances when, each in turn, they form fours.

To Oblique to the Right or Left. 1. ***Right (left) oblique,*** 2. ***MARCH.*** If the platoons are in line the platoon commanders command: 1. ***Right half turn,*** 2. ***MARCH,*** and march their platoons so as to keep themselves approximately in the same relative positions with regard to each other. If the platoons are in column of fours (twos, troopers), the same principles obtain, except that the

leaders cause their platoons to execute *Column half right,* instead of *Right half turn.*

If the captain desires to oblique by trooper, he commands: 1. *Troopers right oblique,* 2. *MARCH.* The troopers execute the oblique march as explained for the squad.

To March to the Rear. 1. *To the rear,* 2. *MARCH.* If the platoons are in line, each platoon executes a turn of 180° to the left. If the platoons are in column of fours (twos or troopers), each platoon executes a *Column left about.*

If the captain wishes the movement to the rear to be executed by wheeling about by fours, he commands: 1. *Fours left about,* 2. *MARCH.* The movement is executed as explained for the squad. The file closers and first sergeant moves to the right to pass through the nearest platoon interval or to pass around the nearest flank to their new positions in rear of the platoons, or, in case of the first sergeant, in rear of the troop. The platoon leaders move to their left to pass around the flanks of their platoons to their new positions in front of their platoons. The captain passes through intervals or around either flank to gain his new position in front of the base platoon.

If the platoons are deployed as foragers, the platoon commanders cause *Troopers left about* to be executed as prescribed in "The Cavalry Rifle Squad."

When the troop is in close order, the machine rifle platoon executes the movements in the same way as do the rifle platoons. But when the troop is in extended order as foragers, the machine rifle platoon should be in such a formation and with such intervals as will permit it to execute *Squads (or half squads) column left about,* or *Troopers left about,* according to its formation. When the troop marches to the rear, the machine rifle platoon finds itself leading the troop and continues there until the captain orders it to the rear of troop.

To March at Route Order. The captain commands: *ROUTE ORDER.* At this command there is no change in the formation. Each platoon marches at route order as prescribed in "The Cavalry Rifle Platoon," except that the captain, if he so wishes, may direct the leader of the leading platoon to ride with him on his left; the leading element of this platoon then follows the captain's group at 6 yards distance.

Extended-Order Drill.

The platoon is the largest unit that has an extended-order drill by fixed commands. For the troop or larger bodies extended-order movements are executed by orders of the commander given under real or assumed tactical situations. These movements must conform to the terrain as it actually exists and to the tactical situation.

Line of Foragers. The troop is rarely deployed on a single line as foragers. In case it is desired to do so, the formation may be gained by orders and means corresponding to those prescribed for the rifle platoon. (See "The Cavalry Rifle Platoon.")

Line of Platoons (Squads, or Squad Columns). Line of platoons is an approach formation that enables the captain to take advantage of the terrain or to lessen the vulnerability to artillery fire. It is taken when the close-order formation, line of platoon columns, does not give sufficient deployment for the object in view, as when a subsequent deployment as foragers is anticipated. Line of platoons also gives more latitude to platoon commanders in conducting the march of their platoons.

The captain may order an advance in line of platoons and prescribe a route or objective for each platoon. He may designate a base platoon and prescribe the interval from this base; in this case the other platoons conform to the movements of the base platoon.

For example, having announced the assumed situation, the captain may

order: (1) *Line of platoons, at (so many) yards. First platoon, FOLLOW ME.* The base platoon is that which follows the captain; the other platoons take the interval ordered (to the right and left of the base) and conform to the movements of the base platoon. The machine rifle platoon follows the base platoon at 50 yards unless otherwise ordered.

(2) *Line of platoons, first platoon move on that hill, second platoon move up that swail, third platoon move along edge of woods, machine rifle squads join rifle platoons. I will be with second platoon. MOVE OUT.*

(3) *Line of platoons, first platoon move on that hill, second platoon move on that clump of trees, third platoon follow first platoon at 200 yards, machine rifle platoon follow second platoon at 25 yards. I will be with the first platoon. MOVE OUT.*

(4) Any similar order that suits the situation and terrain.

Line of squads, or squad columns, is a modification of this formation which may be taken by similar means.

Extension in Depth. The troop is extended in depth to cross fire-swept zones or to make an attack in several waves or echelons. Troops must be practiced frequently in assuming this type of extended-order formations as such formations are usually taken up under difficult combat conditions requiring great rapidity of execution.

For example, having announced the situation, the captain may order:

(1) *Column of platoons in squad columns at (so many) yards with (so many) yards distance. FOLLOW ME.* The captain may change the formation of the platoons by indicating the desired formation to the leading platoon; the succeeding platoons conform to the formation of the leading platoon.

(2) *First platoon move on those woods at the gallop; second platoon echeloned to right at (so many) yards intervals and (so many) yards distance; machine rifle squads join rifle platoons. Third platoon in support remain with me. MOVE OUT.*

(3) *Form two waves in (such and such formation as in squad columns at 40 yards, or, as foragers at 5 yards) with (so many) yards distance.* The base platoon takes the required formation and the second platoon forms abreast and on the left of the base platoon, the two constituting the first wave. Similarly, the third and machine rifle platoons form the second wave and gain the proper distance. If the squads of the machine rifle platoon are required to join their respective rifle platoons, the third platoon alone forms the second wave; in this case, if the troop has but two rifle platoons, the two waves are formed as in (1).

(4) Any similar order that suits the situation and terrain.

Line of Flocks. The troop is rarely deployed in a single line of flocks. In case such a formation is desired, it is gained by orders and means corresponding to those prescribed for the rifle platoon. (See "The Cavalry Rifle Platoon.")

Column of Flocks or Column of Platoons in Flocks. These are taken by orders and means corresponding to those prescribed for the rifle platoon. (See "The Cavalry Rifle Platoon.")

To Avoid Observation by Airplanes. The troop being in march, the mission and the situation may permit that the troop be temporarily in dispersed formation in order better to avoid observation by airplanes. The proper utilization of available cover, with general maintenance of control, are principles to be observed.

For example, the captain may order: *Disperse by squads; first and second platoons under those trees; third and machine rifle platoons around those houses. I will be with the first platoon. MOVE OUT.*

In case the mission or the situation does not permit halting, the most sheltered routes for continuing the advance should be used, in formation adapted

to utilizing cover and minimizing loss if attacked; for example, ***Line of squad columns*** may be appropriate.

To Assemble. 1. ***Assemble,*** 2. ***MARCH.*** This command may be given when the troop is in any extended formation, dispersed or in disorder, or after the ***RALLY.*** The platoons are assembled and marched to the captain or to a point indicated by him. The captain indicates the base platoon by placing himself in front of it and causing it to form in the desired direction. The assembly is made in line unless another formation is indicated by the captain. If another formation is desired, the captain sends word to the platoon commanders in plenty of time and goes to the point of assembly. The relative order in which the platoons assemble is of no importance. The platoons other than the base move to positions on the right and left of the base if a line formation is indicated, or in order from head to rear if a column formation is indicated, in the most convenient manner. The captain may indicate the relative order if he so desires. The assembly is always made as quickly as possible consistent with quietness and order.

To Change Formation Quickly in Awkward Directions. From any formation, close order, extended order, or any special distribution of the platoons, the troop should be frequently practiced in forming in an indicated formation in difficult directions, such as right, left, right rear, left rear, or rear. The captain commands: 1. ***In (such formation),*** 2. ***FOLLOW ME.*** The platoons are conducted and placed by their leaders in the desired formation, any platoon first arriving near the troop commander becoming the base platoon. This exercise gives practice in teamwork between the platoon leaders. It should be done quickly and at different gaits. The relative order of platoons is of no importance if there is cooperation between them.

Order Out of Confusion. To practice bringing order out of confusion, the troop should be deliberately dispersed or thrown into disorder by mixing the troopers so that no platoon or squad formations are apparent. Some squad leaders and some platoon leaders may be quietly directed to fall out as though they were disabled. The captain commands: 1. ***Assemble in (such formation),*** 2. ***FOLLOW ME.*** He moves in the desired direction at a gait and pace regulated according to the facility and promptness with which his platoons succeed in assembling and establishing order. If he goes too fast, he will leave his men behind; but if he does not move at all he makes it more difficult for a quick assembly, because it is always easier to assemble and regain order while moving forward than to do it on the spot.

Each platoon leader (or his successor) assembles his platoon as described in "The Cavalry Rifle Platoon" while leading it in the direction taken by the captain. The first platoon to reach the captain becomes the base platoon. All platoon leaders conduct their platoons in the formation and to the positions necessary to take the troop formation indicated by the captain.

This exercise is practiced until it can be done very rapidly and on all sorts of difficult ground, such as woods, ravines, streets of villages. It is also practiced at night.

To Rally. ***RALLY.*** This is a mounted formation only, and applies only to rifle platoons. Each platoon rallies in line behind its leader. Each platoon leader, without waiting for squad formations which may not be completed, leads his platoon in line at a fast gallop toward the captain, counting fours as it moves. The first platoon to reach the captain becomes the base. The others form *line* on it. But a platoon leader should not attempt to crowd out another platoon which is approaching the captain if it is apparent that the troop can better form on that platoon than on his own. In other words, teamwork is required.

The difference between the *rally* and the *assembly* is that the *rally* is

always made in line and that the men ride at full speed to their platoon commanders without reference to squads or squad leaders. A *quick assembly* may be almost as rapid as a rally, and the platoons are better organized for subsequent action. The assembly may be made in darkness or on difficult terrain, while the rally under such circumstances may only increase the confusion. After the rally it may become necessary to assemble; time would have been gained by assembling in the first place. The rally is therefore only to be used in emergencies requiring an instant charge and when the assembly would consume too much time.

To Bring the Platoon Commanders to the Captain. ***PLATOON COMMANDERS REPORT.*** At this command the platoon commanders proceed at the gallop to report to the captain for instructions. The platoon sergeants take temporary command of platoons.

When the troop is in column the platoon commanders and platoon sergeants of all but the rear platoon repeat the order so that those in rear can hear it.

To Dismount to Fight on Foot. The troop dismounts to fight on foot by commands and methods corresponding to those prescribed for the squad and platoon.

When the command is given to fight on foot it is executed by each platoon, or the captain may designate only such and such platoons to fight on foot. Having assembled their dismounted platoons (in column of fours, unless otherwise directed), the platoon leaders of the rifle platoons look to the captain for orders, commands, or signals.

The squads of the machine rifle platoon, unless otherwise directed, dismount and secure the horses in the prescribed manner; the dismounted men then leave the led horses with the horse holders and join the rifle platoons to which they have been previously and permanently assigned for dismounted combat.

So long as the led horses of the troop remain together the horses of the machine rifle platoon remain assembled under the platoon sergeant file closer in the same way as do the led horses of other platoons. But if a dismounted machine rifle squad has joined its rifle platoon and the led horses of the rifle platoon are sent to any location separated from the troop main body of led horses, the led horses of the machine rifle squad must immediately join the led horses of the rifle platoon. The guidon sergeant sees that this rule is carried out. This is also a responsibility of the sergeants in charge of the horses of the rifle and machine rifle platoons.

If the captain designates only certain rifle platoons to fight on foot, the machine rifle squads that are assigned to such platoons dismount and join these platoons, while the other machine rifle squads remain mounted in their usual place under their platoon sergeant, and do not join their rifle platoons unless so ordered by the captain.

If all of the squads of the machine rifle platoon have joined their corresponding rifle platoons, the leader, platoon sergeant and orderly of this platoon join the captain.

In the absence of special instructions to the contrary, the machine rifle platoon is handled as indicated above.

After the platoons have dismounted, the captain may assemble his troop in any formation, or he may give orders to his platoon commanders without first ordering the assembly.

In emergencies the captain may order the troop, or only certain platoons, *to fight on foot as skirmishers to the right (left, front, rear).*

The horses may be left immobile by linking in couples or by other methods as explained in "The Cavalry Rifle Squad."

If the captain desires to dismount the troop, or a part thereof, leaving horses mobile, not for the direct and immediate purpose of fighting on foot, but for other purposes, he may command: ***DISMOUNT AND LINK HORSES***

or *(such and such platoons), DISMOUNT AND LINK HORSES.* The command is executed in the same manner as prescribed for dismounting to fight on foot, except that machine rifle squads do not join rifle platoons unless so directed. While the platoons are dismounting and assembling the captain indicates to the platoon commanders the kind and place of formation he desires, or gives them other orders.

The troop headquarters detachment is disposed as follows, unless otherwise directed by the captain:

(1) One bugler takes the captain's horse.

(2) The first sergeant dismounts and turns his horse over to the other bugler. He then joins the captain.

(3) The messengers, and any other members of the detachment who may be designated to accompany the captain, dismount and link as prescribed for a squad. They then join the captain.

(4) The guidon (stable) sergeant takes charge of the led horses of the troop.

(5) The remainder of troop headquarters, present, if not assigned positions or duties by the captain, remains with the pack or extra horses, as a squad attached to the machine rifle platoon led horses. If the led horses of all the squads of the machine rifle platoon should join the led horses of the corresponding rifle platoons, this group of the headquarters detachment joins the sergeant in charge of the troop led horses and receives orders from him.

It may happen that the captain will want his own horse and those of the first sergeant and messengers and any other designated men to remain closer to his command post than the other led horses; in this case he must give special instructions to the horse holders concerned, and to the sergeant in charge of led horses. Otherwise, the horse holders of the entire headquarters detachment, with their led horses, are assembled and remain with the led horses of the machine rifle platoon, or as may be directed by the sergeant in charge of led horses.

CHAPTER VI.

THE SQUADRON. THE REGIMENT.

THE CAVALRY SQUADRON.

General Considerations. The major is the commander and tactical leader of the squadron. He is responsible for its theoretical and practical training. He supervises the training of the troops with a view to securing thoroughness and uniformity in their instruction.

In the instruction of the squadron as a whole his efforts will be directed chiefly to the development of tactical efficiency, devoting only such time to the mechanism of the drill and to ceremonies as may be necessary to insure precision, smartness, and proper control.

The squadron consists of not more than four nor less than two troops. In this drill the squadron consists of three troops, but the drill is equally applicable to a squadron of two or four troops. The object of the drill of the squadron is to train the troops to execute together what they have learned separately and to teach the squadron its movements, whether acting alone or in regiment.

Squadron Formations. The following are close-order formations of the squadron:

Line (single or double rank); mass (single or double rank); line of platoon columns; line of troop columns of platoons (single or double rank); line of troop columns; column of fours (twos or troopers); column of platoons (single or double rank); column of troops (single or double rank); the order in echelon, route order.

The squadron is formed for extended-order in line of troops. All other extended-order formations are tactical deployments in frontage and depth ordered by the major in accordance with the tactical situation.

(1) *Line* is a formation in which the troops are in line and abreast of each other with 10 yards interval between troops. In double rank, since the platoons are not echeloned in the troop, the troops are echeloned in squadron, except at the halt; 10 yards interval and 6 yards distance. Therefore, in double rank the captains of the troops other than the base ride on the line of the front rank of the base troop, or of the next troop toward the base.

(2) *Mass* is a formation in which the troops are each in column of platoons and abreast of each other with intervals between troops of 10 yards. The machine rifle platoons are formed, each in its place, without intervals between squads.

(3) *Line of platoon columns* is a formation in which the troops in line of platoon columns are abreast of each other with intervals equal to platoon front plus 6 yards.

(4) *Line of troop columns of platoons* is a formation in which the troops are in column of platoons and abreast of each other with intervals between troops equal to the front of two platoons plus 10 yards. (About 60 yards, or 40 yards when platoons have but two squads.)

(5) *Line of troop columns* is a formation in which the troops are in column of fours and abreast of each other with intervals between troops equal to troop front plus 6 yards.

(6) *Column of fours* (twos or troopers) is a formation in which the troops are in the corresponding formations, one behind another with distances of 10 yards measured from the rear element of one troop to the captain, or his representative, at the head of the troop next in rear.

(7) *Column of platoons* is a formation in which the troops, each in column of platoons, are one behind another with distances of 10 yards measured from the rear element of one troop to the captain, or his representative, of the next troop in rear.

(8) *Column of troops* is a formation in which the troops, each in line, are one behind another with distances of 60 yards measured from the rear element of the base rifle platoon of one troop to the captain of the troop next in rear.

(9) *Echelon* is a formation in which the leading element is a flank troop of the squadron. The troops are so arranged that each is less advanced than the troop next toward the leading flank and is unmasked by the troops which precede it. In whatever formation the troops may be, such intervals and distances are maintained as will permit the troops to form line to the front or to a flank and retain echelon formation without overlapping or undue extension. While neither a line nor a column, echelon has certain characteristics of both.

(10) *Route order* is a special case of column of fours (twos or troopers).

(11) *Line of troops* (platoons, etc.) is an extended-order formation in which the squadron is deployed with troops abreast of each other or echeloned as prescribed in orders of the major. Intervals and distances between troops are not fixed in regulations and may be as prescribed in the major's orders. The troops are in any of the prescribed troop formations as may be determined by the captains or ordered by the major in accordance with the tactical situation.

The commands necessary to effect the formations enumerated above are, with the exception of echelon, indicated by the designations of the formations, as for example, 1. ***Line of troop columns of platoons,*** 2. ***MARCH,*** or 1. ***Mass,*** 2. ***MARCH.*** In special cases the commands are specially prescribed in this text.

Posts of the Major, Staff Officers, Sergeant-Major, Bugler, and Squadron Headquarters Detachment. The habitual post of the major in all close order formations is 12 yards in front of the captain of the base troop. In extended order, he may take position as in close order or go wherever necessary. Whenever the major is accompanied by any members of the squadron headquarters detachment the distance of 12 yards is measured from the captain of the leading troop to the rear element of that part of the detachment which accompanies the major.

The captains are posted as prescribed in "The Cavalry Troop."

The adjutant is posted 2 yards on the left of the major, and abreast of him.

Squadron staff officers (other than the adjutant), who may be present, ride in line in order of rank from right to left, the senior 2 yards in rear of the major.

The squadron sergeant-major is posted 2 yards in rear of the adjutant, or in rear of the staff officer who may be present in rear of the adjutant.

The squadron bugler is posted 2 yards in rear of the major, or in rear of the staff officer who may be present in rear of the major.

The Squadron headquarters detachment. This detachment does not necessarily appear at drills or ceremonies as a detachment, although it usually appears at inspection.

When it appears as a unit, it is usually formed in its three sections from right to left or front to rear as follows: Staff and Orderly Section, Radio Section, Wire Section. The details of its formation may be prescribed by the major.

When the detachment, or any part of it (excepting the sergeant-major and bugler), is present as a unit, it is carefully organized and posted 10 yards in rear of the machine rifle platoon of the base troop when the squadron is in a line formation, or 10 yards in rear of the rearmost troop when the squadron is a column formation. The formation of the unit (in line, column of fours,

twos, or troopers) is determined by that of the squadron, or is as may be directed by the major.

When marching at ***route order*** no change is made unless it is directed by the major.

When necessary the major gives orders for the posting of the different sections, or of special individuals, of the headquarters detachment, as he may deem proper.

On marches, at maneuvers, and in campaign the headquarters detachment is divided into several echelons in accordance with the use to be made of the individuals and equipment in assisting the major and his staff officers in the performance of their duties. The composition of the different echelons and their places in column of march are prescribed by the major.

To Form the Squadron. The squadron is formed habitually in ***mass,*** but may be formed in any formation.

The adjutant informs the captains as to the place of assembly and what the formation is to be. The troops having been formed and marched to the place of assembly, the adjutant takes post so as to be facing the base troop of the squadron when formed. Adjutant's call is sounded or the adjutant signals, ***ASSEMBLE.*** The troops take position habitually in the order of their letter designations from right to left in line and from head to rear in column. The captain of the base troop (the center or right center troop in line, the leading troop in column) places his troop in the required formation so that he himself is facing the adjutant at 12 yards distance. The other troops take their proper places with reference to the base. Any troop may be selected as the base, and if a troop other than that which would normally be the base is thus selected, the other troops take their positions as directed in line or column.

The major takes post 6 yards in rear of the adjutant facing the squadron. When all the troops are in place the adjutant faces about and, saluting, reports to the major, ***"Sir, the squadron is formed."*** and takes his post. The major returns the salute of the adjutant and conducts his squadron as desired.

After the squadron has been formed, in whatever way it faces, troops are numbered from right to left in line and from front to rear in column or echelon, first troop, second troop, etc. The relative order of troops changes during evolutions and maneuvers, and no attention is thereafter paid to their original order.

To Dismiss the Squadron. The major commands: ***DISMISS YOUR TROOPS.*** Staff and noncommissioned staff officers fall out; the headquarters detachment, if present as a unit, is marched to the proper place and dismissed; captains conduct their troops to the proper places and dismiss them.

General Rules for Movements of the Squadron. The squadron executes such movements of the smaller units as are obviously applicable. The major may employ the commands prescribed for the soldier, the squad, the platoon, and the troop where applicable; proper substitutions in the designations of the units are made when necessary.

The major gives his commands or orders orally, in writing, by bugle or signals, or communicates them to the proper subordinates by means of staff officers or messengers.

Each captain gives the appropriate commands or orders and causes his troop to execute the necessary movements at his command of execution. Each captain ordinarily moves his troop from one formation to another in the most convenient manner; and, in the presence of the enemy, in the most direct manner consistent with cover.

Having halted in a formation, no movements for the purpose of correcting minor discrepancies in alignments, intervals, or distances are made unless specially directed by the major or necessitated by the conditions of cover.

The column of fours is the usual column of march on roads. To shorten the column, if conditions demand it and permit it, a double column of fours may be used, the platoons of each troop marching abreast in two columns.

Preliminary to an engagement, the squadron or its units will be placed in the formation best suited for its subsequent tactical employment.

Except at ceremonies and for rendering honors the squadron is rarely ever deployed in a single line in close or extended order. Line, in its strict meaning, is therefor a formation rarely used, although the squadron will often be deployed in two or more lines.

Mass is a formation that may be used when the major desires to give instructions to his squadron. For economizing in the use of space mass may be useful when the squadron is waiting its turn to march out of camps or bivouacs or to take its proper place in a long column. When subject to the fire of the enemy mass should never be used.

The several lines of columns may be used at ceremonies, inspections, and in marches of approach.

Column of fours is used for route marches.

Column of platoons and column of troops are used only for ceremonies and inspections.

Extended order and extensions in depth are, as in the platoon and troop, taken for tactical purposes. They should include dispersions by troop or platoon, executed quickly by prearranged signals or commands, to lessen the vulnerability to attack by low-flying aircraft or fire of hostile artillery.

Intervals between troops in line of columns are prescribed with the idea of allowing approximately correct spaces for deployment.

Distances from one troop to another in column are prescribed with the idea of allowing sufficient space for leaders and for freedom of action of units. Economy of road space is also considered. Distances are not determined with the idea of permitting simultaneous changes of formation in the several troops, because this would require greater distances than the proper economy of space would permit, and because of the presence of machine rifle platoons in the troops many of these evolutions must necessarily be made successively. Changes of formation in the several troops are therefore usually made successively and the proper distances gained by increasing or decreasing the gaits of the units in rear of the base. The principle of measuring distance from the rear element of one unit to the leader of the next in column is adopted because it permits the leader better to judge his distance; and no matter how many men of his headquarters detachment may accompany him there is always room for them in the column, and the distance from the leader to the preceding unit always remains the same.

In the squadron any formation can be taken from any other.

A squadron in any line formation habitually forms in any column by breaking to the direction of march from its base troop in line. The base troop is indicated by the major who rides in front of its leader or who indicates it in his command or orders. The center or right center troop is habitually designated as the base, but the column may be formed on any troop as indicated by the major.

When breaking into column from a line formation, the order of troops is the base troop, the next troop on the left of the base in line, the next troop on the right of the base in line, the second troop on the left of the base in line, etc.

A squadron in column of any kind habitually forms in any line formation by a fan-shaped deployment. The second troop in column moves up on the left of the base or leading troop; the third troop in column moves up on the right of the base troop, and so on. When the line is to be formed facing a direction other than the direction of march, the head of the column is turned to the new direction before deployment is ordered.

The squadron executes the movements necessary to change from one formation to another in accordance with the principles prescribed for ployments and deployments in "The Cavalry Troop." This applies to both close order and extended-order movements and to extensions in depth. Similar commands are used, with proper substitutions. Only those commands and means that are not, with proper substitutions, the same for the squadron as for the troop, or are not plainly indicated in the paragraph describing the various formations, are specially given in this text for the squadron.

To Form Column of Fours from Line by Wheeling by Fours. 1. ***Column of fours,*** 2. ***First (third) troop, fours right (left),*** 3. ***MARCH.***

The first troop executes ***Column of fours, first platoon, fours right;*** the machine rifle platoon follows the rifle platoons at the proper time. Each of the other troops wheel by fours in the same way in time to follow the preceding troop at the proper distance.

This is not the normal method of forming column of fours. The normal method is that each troop forms column of fours as prescribed in "The Cavalry Troop," the base troop leading in the indicated direction and the others following in the proper order.

To Move Toward a Flank for a Short Distance. 1. ***Fours right (left),*** 2. ***MARCH.***

All troops execute ***Fours right*** simultaneously. The machine rifle platoons do not change their places in line or column, but execute ***Fours right,*** maintaining same relative positions.

When sufficient distance has been gained to the flank, the major commands: 1. ***Fours left (right),*** 2. ***MARCH.***

To Form Echelon. The squadron being in any line formation, 1. ***On first (third) troop, echelon, 2. MARCH.***

The base troop follows the major or moves in the indicated direction. The other troops in order are conducted to their proper places.

The squadron being in any column formation, 1. ***Right (left) front into echelon,*** 2. ***MARCH.*** The leading troop advances to the front, or in the indicated direction. The other troops move diagonally to the right (left) front and take their places in echelon.

The squadron in echelon is not readily maneuvered by oral commands or visual signals. The captain of the base troop follows the major's movements and causes his troop to execute any changes of formation that the major may indicate. The other troops conform to the movements and formations of the base troop, preserving their relative positions with respect to the latter. Should the squadron in echelon be marched to the flank or rear, the major takes position in front of the new base troop, unless the march to the original front is to be resumed promptly.

Echelon formation permits of advancing a flank to overlap the enemy, at the same time remaining ready to face him at any instant or avoid envelopment by refusing a flank. Echelon is a formation for maneuver only. In whatever formation the troops may be, such intervals and distances will be maintained as to permit the troops to form line to the front or to a flank and retain echelon formation without overlapping or undue extension. In echelon the most advanced troop is the base troop. Echelon is always formed on a flank troop in line or the leading troop in column.

The squadron being in order in echelon, to re-form the squadron in any formation, the major commands or signals: 1. ***Assemble,*** 2. ***MARCH,*** and indicates the base troop. The movement is executed as prescribed for the assembly.

Route Order. In route order the major and such members of his staff and headquarters detachment as may accompany him ride at the head of the column

or as the major may direct. At the command 1. *Route order,* 2. *MARCH,* the troops take route formation. The leading troop follows the major at the prescribed distance. The prescribed distance between troops will be retained unless a greater distance is authorized. The headquarters detachment, if present, makes no change in its formation or position in the squadron unless it is directed by the orders of the major.

The Assembly. The squadron is assembled when the troops of the squadron are united in any authorized close-order formation of the squadron. The assembly is executed in *mass* unless the major indicates some other formation, in which case the indication is given as the troops approach the major's position and sufficiently in advance for each captain to lead his troop to its proper position.

The major selects the base troop and indicates it in his orders or by placing himself in front of it and causing it to form in the desired formation and to face in the desired direction. The assembly of the squadron is effected according to the principles that govern the assembly of the troop.

The commands of the major are: 1. *Assemble,* 2. *MARCH.* Each troop, if not already assembled, is assembled by its captain before taking its place in the squadron. The assembly is made as quickly as possible consistent with quietness and order.

The squadron does not rally, but executes a quick assembly. If necessary, however, the captains may rally their troops in order to effect a very rapid squadron assembly.

THE CAVALRY REGIMENT.

The colonel as commander of the regiment is responsible for the preparedness of his regiment for service.

For the purposes of drill and maneuver, the regiment consists of two or three squadrons. The movements prescribed apply as well to any number of squadrons.

In whatever formation the regiment may be, or in whatever direction it may be facing, the squadrons retain their permanent administrative designations of first squadron, second squadron, etc.; for convenience at drill, however, they are always designated when in line as right, center, or left squadron, and whenever in column, as leading, center, or rear squadron, these designations applying to their actual positions at the time in *Line* or in *Column.*

General Principles for Formations, Commands, and Orders. The formations that are prescribed for the squadron are also, with the same designations, prescribed for the regiment. The regiment, however, is massed in two ways, the formations being termed *Line of masses* and *Column of masses.* It is to be understood, of course, that in any formation the regiment is not formed of so many troops, but of two or more squadrons each in the corresponding formation with intervals or distances between squadrons as prescribed in these regulations.

In regimental drill and maneuver, the squadrons are conducted to their places according to the same principles that obtain for the troops in squadron.

The regimental commander may employ commands similar to those used for smaller units wherever they are applicable, making proper substitutions wherever necessary.

Commands or orders are given, not to smaller unit commanders, but to the squadron commanders who execute them.

As in the squadron, the wording of commands is determined by the names or designations of formations. The colonel gives his commands or orders orally, in writing, by bugle, by signal, or communicates them to his subordinate commanders by means of staff officers or messengers.

If the colonel's orders are transmitted by messenger (whether an officer or an enlisted man), the messenger uses the formula, *Colonel's (Regimental*

Commander's) orders, sir, and then repeats the message in the exact words in which given, or delivers the message, if a written one.

The colonel signals ***ATTENTION,*** or causes it to be sounded, preparatory to giving an oral command or a signal. When the regiment is in more than one line, if the movement is to be executed by one of the lines only, ***First (or such) line*** is specified in the preparatory command; the commander of the designated line repeats and executes the command.

A squadron, while awaiting the completion of a movement by other squadrons, may be permitted by its major to stand ***at ease.***

Intervals and Distances Between Squadrons. Intervals between squadrons in line of columns, if calculated accurately, would depend upon the size of the various units. As such intervals can be taken only approximately, they are prescribed in multiples of ten so as to be easily remembered.

Distances between squadrons in column are not dependent on deploying space nor on the simultaneous changes of formation in the squadrons, because deployments are usually fan-shaped and almost all evolutions are made successively as described in "The Cavalry Squadron." Distances are therefore determined only with the object of allowing space for the leaders and their staffs and orderlies and to economize in road space. They are prescribed in multiples of ten and are measured from the rear element of one squadron to the leader of the next squadron in rear.

The following are the normal intervals and distances. They may be changed by the colonel, if necessary, as indicated in his commands or orders:

Intervals between squadrons—

Line, single or double rank	20 yards.
Line of masses	20 yards.
Line of platoon columns	40 yards.
Line of troop columns of platoons	70 yards.
Line of troop columns	90 yards.

Distances between squadrons—

Column of masses	20 yards.
Column of fours (twos or troopers)	20 yards.
Column of platoons	20 yards.
Column of troops	40 yards.

Posts of Officers and Others. The colonel, when leading his regiment, is habitually posted 24 yards in front of the leader of the base squadron. When the colonel is accompanied by any members of the headquarters, or headquarters or service troops, the distance is measured from the major of the leading squadron to the rear element of the group accompanying the colonel. When not leading, the colonel goes wherever his presence is necessary, leaving instructions with the lieutenant colonel or the senior squadron commander as to direction, gait, and anything else necessary.

The lieutenant colonel is the assistant and executive officer of the colonel. He performs such duties as the colonel may direct. He is habitually posted on the colonel's left. In his absence a staff officer takes his place.

The majors are posted as prescribed in "The Cavalry Squadron." During route marches and field exercises they go wherever they can best command their squadrons.

At all regimental exercises, except as may be provided for ceremonies, the staff officers (if present) ride in line in order of rank from right to left, the senior 3 yards in rear of the colonel. When the regiment is in column of fours (twos or troopers) the staff group takes a similar formation or marches as directed by the colonel.

Noncommissioned staff officers and orderlies, if present, ride in line in order of rank from right to left, 3 yards in rear of the line of staff officers. When

in column of fours (twos or troopers) this group rides in rear of the staff officers with a distance of 4 feet from head to croup.

In line and in line of columns the left of the front ranks of the band is 12 yards to the right of and in line with the rank of the right squadron or leading subdivision. In column it is 12 yards in front of the officers of the leading subdivision.

In **line** and in **line of columns** the guard to the standard is posted by itself midway between the first and second squadrons, on line with the leading unit. In **column** it maintains a corresponding position in the center of the column. In route marches the guard to the standard is at the head of the column, in rear of the orderlies.

As organizations the headquarters and service troops have no assigned posts in regimental formations. In marches and in campaign the headquarters and service troops are divided into several echelons in accordance with the use to be made of the individuals and equipment in assisting the colonel and his staff officers in the performance of their duties. The composition of the different echelons and their places in column of march are prescribed by the colonel.

To Form the Regiment. The regiment is formed habitually in ***Line of masses, or Column of masses,*** but may be formed in any formation.

The executive officer, or staff officer acting as such, informs the majors as to the time and place of assembly and what the formation is to be. The squadrons having been formed and marched to the place of assembly, the executive officer takes post so as to be facing the base squadron of the regiment when formed. Regimental call followed by assembly is sounded or the executive officer signals, ***ASSEMBLE.*** The squadrons take position in the order prescribed by the colonel. The major of the base squadron places his squadron in the required formation so that he himself is facing the executive officer at 24 yards distance. The other squadron takes its proper place with reference to the base. Any squadron may be selected as the base.

The colonel takes post 6 yards in rear of the executive officer, facing the regiment. When the squadrons are in place the executive officer faces about and, saluting, reports to the colonel, ***Sir, the regiment is formed,*** and takes his post. The colonel returns the salute of the executive officer and conducts his regiment as desired.

To Dismiss the Regiment. The colonel commands: ***DISMISS YOUR SQUADRONS.*** Commissioned and noncommissioned staff officers fall out. Any organized detachment from the headquarters and service troops is conducted by its leader to the proper place and dismissed; majors and commanders of any attached units conduct their commands to the proper places and dismiss them.

CHAPTER VII.

CEREMONIES AND INSPECTIONS.

General Provisions. The purpose of ceremonies including inspections is, depending upon circumstances, to promote esprit de corps and morale, to preserve tradition, to render honors, or to exhibit the state of training and efficiency of a command.

Besides affording the members of a command an opportunity to see all its diverse elements drawn up together and to permit the individual to retain a mental picture of the relative sizes, shapes, dimensions, and formations of the different units of which he is a part, there is something in the sight and feel of large numbers of men, animals, and equipment massed together which imparts a feeling of power and confidence not only to those witnessing the ceremony, but also to those taking part in it.

Cavalry ceremonies should, whenever possible and appropriate, be mounted.

In the description of the ceremonies, all distances are measured from the rear element of one unit to the leader of the next unit in column.

In the description of all ceremonies, those members of the commander's headquarters or of his headquarters detachment who accompany him during the ceremony are designated collectively as his staff.

While a unit is being formed its leader and his staff face the unit. As soon as the unit has been formed and reported, the leader and his staff turn about and take corresponding positions facing to the front.

Each cavalry unit is formed for ceremonies as prescribed in the drill for that unit, with the following modifications:

(1) In forming the troop for any ceremony the guidon is posted on the right of the rank if the troop is in line and on the right of the leading platoon if the troop is in column of platoons, and remains in that position throughout the ceremony. Dress in all units, throughout the ceremony, is to the right.

(2) If the troop attends a ceremony in which the squadron is to form in any line formation, the troop commander must give the necessary commands for any required change of formation at such time that the change will be completed at least 30 yards in rear of the ground on which the squadron is to form.

(3) In any unit larger than the troop the next smaller units are posted from right to left in line and from head to rear in column in the order of rank of their respective commanders present at the ceremony, the senior on the right in line or at the head in column.

(4) In forming the squadron or the regiment in any line formation for a ceremony, the next smaller units are conducted by their commanders to the place designated for the ceremony and halted in the proper formation in rear of the ground on which the squadron or the regiment is to form.

(5) The assembled buglers, or the band, take position in rear and a little to the right of the point at which the right of the line is to rest after the unit has been formed.

(6) The squadron or regimental adjutant, accompanied by the squadron or regimental sergeant major, precedes the troops to the place of the formation. When the troops and the assembled buglers, or the band, are all on the ground, the adjutant and the sergeant major post themselves, facing each other, the adjutant a few yards outside the point where the right, and the

sergeant major a few yards outside the point where the left, of the unit is to form.

(7) The adjutant then signals the assembled buglers, or the band, to sound adjutant's call. At this call all guidons gallop forward and halt on the line established by the adjutant and the sergeant major, facing to the front opposite the place where the right of their respective troops is to rest, and dress to the right without command. The adjutant aligns the guidons on the sergeant major.

(8) The adjutant then signals the assembled buglers, or the band, to sound forward march or trot march. The unit is then formed on its right subordinate unit, which approaches from the rear (distances and intervals being carefully corrected during the movement). It is led toward the line established by the adjutant, the sergeant major, and the guidons and halted by its commander, so that the rank, or the leading rank if there is more than one, is a little short of the line. The commander of the subordinate unit then commands: 1. **Right,** 2. **DRESS.** The right trooper of the rank, or leading rank, of the troop, or of each troop, moves up abreast and on the left of the guidon. The adjutant aligns each rank, or leading rank, on the guidon.

(9) The other subordinate units are led successively, in their proper order, from right to left, to their places in line, and their leading ranks are aligned as prescribed for the first subordinate unit.

(10) When all the subordinate units are on the line, the adjutant corrects the alignment of all subordinate commanders and their staffs and of all the elements in rear of the leading ranks of the different subordinate units. When the alignment is complete the adjutant commands: ***FRONT.***

(11) During the formation the assembled buglers, or the band, play. As the right subordinate unit is approaching its place in line, the assembled buglers, or the band, advance and take post 12 yards from the right of the right subordinate unit with their front rank on line with the leading rank of this unit. When the last subordinate unit has arrived on the line, the assembled buglers, or the band, cease playing.

(12) The unit commander, with his staff, takes post in front of his unit and facing it at a convenient distance, generally about half its front.

(13) When the adjutant has completed the alignment and commands **Front** he turns to the front and, passing in front of the line of subordinate commanders, moves at the trot or gallop to a point midway between the center of the line and the unit commander, faces the commander, and halts. The sergeant major joins the unit commander at the trot or gallop and takes his post.

(14) The adjutant salutes the unit commander and reports, ***Sir, the squadron (regiment) is formed.*** The unit commander returns the salute and directs the adjutant, ***Take your post, sir.*** The adjutant moves at the trot or gallop and, passing by the right and rear of the unit commander, takes his post on the right of the commissioned staff.

(15) At the formation of the brigade for ceremonies adjutant's call is not sounded. The brigade is not formed by its adjutant and is not reported to its commander. As each regiment and special unit arrives near the place designated for it in the ceremony, its commander causes it to take the proper formation, to dismount and rest. At a sign or message from the brigade commander that the ceremony is to commence each regimental or special unit commander calls his unit to attention, causes it to mount, and, if armed with the saber, to draw saber.

Whenever, during a ceremony, it is prescribed that the leader of a unit shall face his unit in order to give a command, or otherwise, his staff stand fast and remain faced to the original front. The leader, in facing his unit,

takes position so that he can clearly see and be seen by his subordinate leaders, moving, if necessary, to the rear of his staff to do so.

The leader of any unit in turning about at a ceremony turns to the right about.

The prescribed ceremonies are reviews, parades, and escorts.

REVIEWS.

Purpose and Conduct of. A review is a ceremony tendered to a civil or military official or to a foreign dignitary. A review may also be ordered by an appropriate commander for the purpose of presenting decorations or making a general inspection of the arms, clothing, equipment, personnel, and animals of an organization by the reviewing officer while passing around the troops. A review may also serve as a test of horsemanship, condition of mounts, or precision of evolutions.

The reviewing ground is usually rectangular in shape and of a size suitable to the command. The troops are formed on the middle portion of one of the long sides facing the field, the reviewing officer's post being at the middle of the opposite side and facing the troops.

The squadron is the smallest unit which is reviewed. To secure uniformity and precision of movements, the size of platoons should be equalized, as nearly as practicable, within each troop.

In forming for review the troops may be placed in any authorized line formation. The squadron is usually formed in line; it may be in mass. The regiment and the brigade are usually formed in line of masses. If the ground is restricted, formations and movements must be adapted to the space available. Intervals and distances may have to be reduced. Formations in double rank are more impressive than those in single rank.

The adjutant posts mounted men or otherwise marks the points where the column, as it passes in review, is to change direction in such a manner that the right flank of the column as it passes in review will be about 20 yards from the reviewing officer.

For any unit the movement to break into column from line preparatory to passing in review is a successive movement, the subdivision on the right breaking into column or wheeling first, the others following at the proper time in order from right to left.

The first march past is usually made at a walk. The reviewing officer may direct the command subsequently to pass in review at any gait or in any authorized formation. If he orders the formation changed, the evolution is made immediately after the second change of direction beyond the reviewing stand.

Troops march in review, passing the reviewing officer on the right or left of the marching column. In the latter case the commander adds, after the command *Pass in review,* the command *Guide left.* At this command all guidons move at a gallop to the left of the rank, or leading rank, of their respective troops. The commander and his staff, on turning out of the column, take post as prescribed later, but to the left of the reviewing officer.

Each guidon and, when the rank of the reviewing officer entitles him to the honor, each regimental standard salutes at the command *Present saber,* and again in the first march past. The troops may pass in review several times at different gaits, in which case the salutes are rendered the first time only.

In the first march past, all officers, all platoon leaders, the noncommissioned staff, and the guidons salute. Those saluting turn the head and eyes toward the reviewing officer.

The national standard renders no salute.

The post of the reviewing officer, usually opposite the center of the line, is marked by a flag. The commissioned personnel of the staff place

themselves in line in order of rank from right to left, the senior 3 yards in rear of the reviewing officer. The enlisted personnel of the reviewing officer's staff are similarly placed 3 yards in the rear of the commissioned staff. The flag of a general officer is placed on the right of his enlisted staff.

Officers of the same or higher grade and distinguished personages invited to accompany the reviewing officer place themselves on his left. The commissioned and enlisted staffs place themselves, respectively, on the left of the commissioned and enlisted staffs of the reviewing officer. All others who accompany the reviewing officer place themselves on the left of his commissioned staff, their enlisted attendants in rear. A staff officer is designated to escort distinguished personages during the review and to indicate to them their proper positions.

When an organization is reviewed by an inspector junior in rank to the commanding officer, the commanding officer receives the review as reviewing officer and is accompanied by the inspector, who takes post on his left.

The troops being in readiness, the reviewing officer, as an indication to the commanding officer of troops to proceed with the review, rides alone a few steps toward him and receives the salute. Then, with or without his staff, the reviewing officer joins the commanding officer and rides around the troops, the commanding officer on his right. The ride around the troops may be dispensed with, in which case the reviewing officer directs the commanding officer to march the troops in review and himself returns to his post at the reviewing stand.

When riding around the troops, the reviewing officer may direct his staff to remain at the post of the reviewing officer, or that only his personal staff (aids) shall accompany him. In this case the commanding officer alone accompanies the reviewing officer. If the reviewing officer is accompanied by his entire staff, the members of the staff of the commanding officer place themselves on the right of the staff of the reviewing officer. The flag of a general officer remains at the post of the reviewing officer during the ride around the troops.

When passing around the troops, the reviewing officer and those accompanying him salute the standards when passing in front of them, but the standards do not salute.

If so directed by the reviewing officer, each subordinate commander, without his staff, joins the reviewing officer as the latter approaches his unit and remains with him until he leaves the vicinity of the unit. The subordinate commander during this time rides on the right of the reviewing officer and on the left of the commanding officer, who leaves sufficient interval for this purpose.

During the march past, the reviewing officer and others at the reviewing stand salute the standards as they pass. The regimental standard salutes if the rank of the reviewing officer entitles him to the honor. The reviewing officer returns the salute of the commanding officer of troops and the salutes of subordinate commanders down to include squadron commanders. Those who accompany the reviewing officer salute only the standards.

During the march past, the commanding officer of troops and his staff, after passing the reveiwing officer, turn out of the column. The commanding officer takes post on the right of the reviewing officer and the members of his staff take post on the right of the reviewing officer's staff. Sabers are not returned. When the rear element of the command has passed, the commanding officer of troops, without changing his position, salutes the reviewing officer. He and the members of his staff then rejoin the command.

If the person reviewing the command is not mounted, the commanding officer and his staff, on turning out of the column after passing the reviewing officer, dismount preparatory to taking posts. In this case the salute of

the commanding officer, prior to rejoining his command, is made with the hand before mounting.

When, during the review, the commanding officer causes his unit to present saber and salutes the reviewing officer, if the rank of the reviewing officer entitles him to the honor, the drummers sound the ruffles while the buglers sound the flourishes. Then the buglers sound the General's March. In lieu of the General's March the band plays The National Anthem, if the rank of the personage saluted entitles him to that honor, or, if the band is not present, the buglers sound To the Standard.

The band plays while the reviewing officer is passing in front and in rear of the troops. In the march past it changes direction at the markers without command. Immediately after passing the reviewing officer the band turns out of column, takes post in front of and facing the reviewing officer, and continues to play until the troops have passed. It continues to play while the drummers sound the ruffles and the buglers sound the flourishes and the General's March. The National Anthem is not played during the march past.

In a review of more than one regiment, when the band of the following regiment arrives within 100 yards of the reviewing officer, the band of the preceding regiment ceases to play and joins its regiment. The band of the following regiment then begins to play.

When the command is to pass at an increased gait the band remains in front of the reviewing officer and continues to play until the column has completed its first change of direction after passing the reviewing officer. As soon as the increased gait is taken up the column the band plays in appropriate time. Upon completion of the review the band returns to the position it occupied before marching in review, or it is dismissed if so desired.

If, after the first march past, a formation for the next march past is ordered with a front so wide as to interfere with the band, the latter takes position 15 yards to the right of and on line with the reviewing officer, instead of facing him.

Squadron Review.

The squadron is formed for review in line (single or double rank) or in mass (single or double rank), usually the former. It passes in review in Column of platoons (single or double rank).

The squadron having been formed, the reviewing officer moves a few steps toward the squadron commander and halts. The squadron commander then turns about and, facing the squadron, commands: 1. *Draw,* 2. *SABER,* and 1. *Present,* 2. *SABER.* Each guidon salutes at the command *Present saber.* The squadron commander again turns about and salutes the reviewing officer. The reviewing officer returns the salute, the squadron commander turns about, commands: 1. *Carry,* 2. *SABER,* and again turns about, facing the front.

The reviewing officer, if he does not desire to ride around the line, returns at once to his post and the march past follows. Otherwise, he approaches the squadron commander, who then joins the reviewing officer, salutes him, and, riding on his right, both proceed to the right of the assembled buglers, or the band, and ride around the squadron, making such general inspection as the reviewing officer may desire.

On arriving again at the right of the line the squadron commander salutes, halts, and, when the reviewing officer and staff have passed, moves directly to his post in front of the squadron, faces it, and commands: 1. *Pass in review,* 2. *Column of platoons, on first troop,* 3. *MARCH.* At the command *MARCH* the assembled buglers, or the band, move, playing, to the front sufficiently to be directly in front of the leading platoon when the latter has changed direction. They then execute *Right turn* and pass in review. At the proper time the commander of the right troop commands: 1. *Column of platoons, on first platoon,*

2. *MARCH.* Each rifle platoon executes *Right turn* in time to take its place in column and pass in review. The machine-rifle platoon, at the proper time, executes *Forward march* and then *Right turn* in time to take its place in column and pass in review. The commander of the first troop takes his place in front of the leader of his leading platoon and follows the assembled buglers, or the band, at 6 yards distance. The second and third troops follow in succession, each by command of its commander, and conform to the movements of the first troop. The squadron commander, followed by his staff, takes post in column 24 yards in front of the assembled buglers, or the band, and leads the column.

When at 6 yards from the reviewing officer, the squadron commander and his staff salute together, turning the head and eyes toward the reviewing officer. The staff returns to the carry with the squadron commander, when they have passed 6 yards beyond the reviewing officer. The squadron commander then signals *Disregard,* and, followed by his staff, leaves the column and joins the reviewing officer. In the first march past all officers, all platoon leaders and the guidons salute. Those saluting turn their head and eyes toward the reviewing officer.

When the squadron arrives near its original position in line the squadron commander gives the appropriate commands for taking the gait directed, and the squadron passes in review as before. The review terminates when the squadron has passed the reviewing officer for the last time. The assembled buglers, or the band, then cease to play and, unless otherwise directed by the squadron commander, are dismissed. The squadron commander and his staff rejoin the squadron. The squadron then executes such movements as the reviewing officer may direct, or is marched to the stables and dismissed.

Regimental Review.

The regiment is formed for review in line (single or double) or in line of masses (single or double rank). It may pass in review in column of platoons or in column of masses. It does not, however, pass in review in column of masses unless it has been formed in line of masses.

With the following exceptions, the regimental review corresponds to that of the squadron:

(1) *Formed for review in line.*

a. When the regimental commander commands: 1. *Present,* 2. *SABER,* if the rank of the reviewing officer entitles him to the honor, the regimental standard salutes with the guidons and again in the first march past.

b. The regimental commander's command to pass in review in column of platoons is: 1. *Pass in review,* 2. *Column of platoons, on first squadron,* 3. *MARCH.* The squadron commanders' commands are the same as in squadron review, omitting the words "pass in review." The troop commander's commands are the same as in squadron review.

c. The band executes the movements and plays as prescribed for squadron review, except that its post in column is 12 yards in front of the commander of the leading squadron, who, with his staff, occupies his normal position in column.

d. As soon as the march in review begins, the regimental commander, followed by his staff, takes post 24 yards in front of the band and leads the column.

(2) Formed for review in line of masses. With the following exception the review in line of masses corresponds to that in line. If the regiment is to pass in review in column of masses, the regimental commander's command is: 1. *Pass in review,* 2. *Column of masses, on first squadron,* 3. *MARCH.*

PRESENTATION OF DECORATIONS.

When practicable a review will be held on occasion of the presentation of the Medal of Honor, the Distinguished-Service Cross, the Distinguished-Service Medal or the decoration of the standards.

After the reviewing officer has passed around the line and resumed his post the commanding officer of the troops from his post commands, orders, or signals: 1. ***Persons to be decorated and all standards, center,*** 2. ***MARCH.*** at the command ***March*** persons to be decorated and all standards move by the most direct route and take post, as follows:

(1) The persons to be decorated in single rank in front of the center of the command and 3 yards in front of the line of troop commanders. These individuals form in groups according to rank of decorations; within each group according to rank of individuals, highest ranking decoration and individual on the right, respectively.

(2) Standards to be decorated take post 3 yards in front of the center of the line of persons to be decorated in groups according to the rank of decoration to be bestowed, highest ranking decoration on the right.

(3) All other standards with standard guards in single rank 3 yards in rear of the center of the line of persons to be decorated and in the same relative position as their location in the command.

(4) The commanding officer of the troops takes post 5 yards in front of the center of the leading element. He then commands: 1. ***Forward,*** 2. ***MARCH.*** At the command ***MARCH,*** the commanding officer, the persons to be decorated, and the standards advance, the band playing. The commanding officer of the troops advances toward the reviewing officer. In all ranks the guide is center. The detachment is halted by the commanding officer of the troops when he has reached a point 12 yards from the reviewing officer by the command: 1. ***Detachment,*** 2. ***HALT.*** He then salutes the reviewing officer and reports: "Sir, the persons (standards) to be decorated are present." The reviewing officer turns the salute and directs that the command be presented. The commander of the troops returns to his post in front of the center of his command by moving around the right flank of the persons or standards to be decorated and then directly to his post. On reaching his post he commands: 1. ***Present,*** 2. ***SABER,*** faces about and salutes. The band then plays The National Anthem. If only the assembled buglers are present, To the Standard is sounded. On completion of the music the commanding officer of the troops brings the command to ***Carry saber.*** The persons to be decorated and the regimental standard salute and terminate the salute at the commands ***Present saber*** and ***Carry saber,*** respectively, of the commanding officer of the troops.

A designated staff officer then reads the order announcing the awards. After the reading of the order the reviewing officer, accompanied if necessary by his staff or designated members thereof, advances toward the standards and the line of persons to be decorated. The reviewing officer, those members of his staff who have advanced with him, the standard bearers of the standards to be decorated, and the persons to be decorated then dismount. The reviewing officer, after turning over his horse to an orderly, fastens the appropriate streamer to the staff of the standard and pins the decoration on the left breast of each person to be decorated.

The reviewing officer then directs the commanding officer of the troops to march the command in review and resumes his post. The persons decorated form line on the left of the reviewing officer, or otherwise as directed, and the standards return to their post.

PARADES.

Parades are ceremonies ordered by the commander for the purpose of publishing important orders or of emphasizing the importance of smartness in appearance of personnel and animals and of smoothness and precision of evolutions.

The squadron and the regiment are the only units for which parades are prescribed. Ordinarily the saber is the only arm carried.

Squadron Parade. The squadron is always formed for parade in line (single rank). The squadron commander and his staff take post at a convenient distance, usually equal to one-half the width of the squadron, in front of and facing it.

As soon as the formation is complete the troop commanders, commencing at the right, successively draw saber, turn about, and command: 1. *Troop A (B or C),* 2. *Draw,* 3. *SABER,* and face again to the front.

When the last troop has drawn saber, the squadron commander draws saber and commands: *SOUND OFF.* The squadron staff draws and returns saber with the squadron commander. The assembled buglers, or the band, playing a march, pass in front of the troop commanders to the left of the line, execute a countermarch, march back to their posts on the right of the line, where they face to the front by executing another countermarch and cease playing.

If parade is held at retreat, the buglers, after returning to the right of the line and ceasing to play the march, immediately play retreat. The squadron commander commands: 1. *Present,* 2. *SABER,* and with his staff salutes. The buglers then play To the Standard or the band plays The National Anthem.

When the music has ceased the squadron commander commands: 1. *Carry,* 2. *SABER.* He then directs the adjutant, "Receive the reports, sir." The adjutant advances at the trot or gallop toward the center of the line, halts midway between it and the squadron commander and commands: *REPORT.* The troop commanders, commencing on the right, successively salute and report, *A (B or C) Troop, present or accounted for,* or *A (B or C) Troop, (so many) officers or men absent.* The adjutant returns the salute of each troop commander.

The adjutant then turns about, salutes and reports, *Sir, all present or accounted for,* or *Sir, (so many) officers or men absent.* The squadron commander returns the salute and directs: *Publish the orders, sir.* The adjutant turns about, cautions: *ATTENTION TO ORDERS,* and publishes the orders.

The adjutant then commands: 1. *Officers,* 2. *Center,* 3. *MARCH.* At the command *Center* the officers commanding platoons in each troop move directly forward and take posts on line with the troop commander, except that the platoon leader of the base platoon takes post 3 yards on the left of the troop commander and the platoon leader of the machine-rifle platoon takes post on line with the leader of the left rifle platoon and directly in front of the left flank of the troop. All officers then return saber. Noncommissioned officers commanding platoons remain at their posts in front of their platoons. At the command *March* the troop commander of the center troop stands fast. The adjutant resumes his post and returns saber. The other officers turn individually, close toward the center of the squadron, and halt on line with the troop commander of the center troop, facing to the front. The officers being thus formed, the senior commands: 1. *Officers,* 2. *Forward,* 3. *MARCH.* The officers advance, the assembled buglers, or the band, playing. The commander of the center troop is the guide and marches directly toward the squadron commander. At 6 yards from the squadron commander the senior commands: 1. *Officers,* 2. *HALT.*

The assembled buglers, or the band, cease playing. The officers halt and salute. The squadron commander returns the salutes. The squadron commander gives such instructions to the officers as he may deem desirable and commands: 1. *Officers,* 2. *POSTS,* 3. *Trot (or gallop),* 4. *MARCH.* The

officers turn successively to the right or left, resume their posts by the shortest route, and draw saber.

The senior troop commander then takes command of the squadron and gives the necessary commands to pass in review. The squadron commander does not leave his post. After the march past the ceremony terminates and the troop commanders conduct their troops to stables and dismiss them, the assembled buglers, or the band, playing until the troops leave the parade ground.

If he desires the officers of the squadron to witness the march past, the squadron commander, instead of directing them to return to their posts, directs them to form in rear on the left of his staff, and the march past is conducted with the senior first sergeant in command of the squadron.

Regimental Parade. The regiment is formed for parade in line (single or double rank) or in line of masses (single or double rank).

Regimental parade corresponds to squadron parade, with the following additions and exceptions:

(1) *Formed for parade in line.*

a. The regimental commander, with his staff, takes post at a convenient distance, usually approximating the front of a squadron in line, in front of the center of the regiment, facing it.

b. When the formation is complete the squadron commanders, commencing on the right, successively draw saber, turn about, and command: 1. ***First (second) squadron,*** 2. ***Draw,*** 3. ***SABER,*** and turn to the front.

c. When the last squadron has drawn saber the regimental commander draws saber and commands: ***SOUND OFF.*** The regimental staff draw and return saber with the regimental commander.

d. The band executes the movements and plays as prescribed for squadron parade, passing in front of the line of squadron commanders, except that, if the regimental line is very long, the band, on indication from the regimental commander, may sound off from its post on the right of the regiment.

e. The squadron commanders report as do the troop commanders in squadron parade. The wording of the necessary reports and commands is similar to that in the squadron parade, substituting when necessary the words, ***First (or second) Squadron for Troop A (B or C).***

f. The regimental adjutant publishes the orders and gives the command: 1. ***Officers,*** 2. ***Center,*** 3. ***MARCH.*** At the command ***Center*** the officers of each squadron move up on line with the troop commanders as in squadron parade. All officers then return saber. At the command **March** the officers turn individually, close toward the center of the regiment, and halt on line in front of the standards, with the left officer of the right squadron in the center. The squadron commanders, with their commissioned staffs, turn to the left and right and form on the right and left, respectively, of the line of officers. The senior squadron commander commands: 1. ***Officers,*** 2. ***Forward,*** 3. ***MARCH,*** and at the proper time: 1. ***Officers,*** 2. ***HALT.*** The officer on the left of the right squadron is the guide during the movement.

g. The senior squadron commander takes command of the regiment and gives the necessary commands for causing the regiment to pass in review. If the officers are to remain at the post of the regimental commander during the march past, the regimental sergeant major commands the regiment.

(2) *Formed for parade in line of masses.* The parade in line of masses corresponds to that in line, except that at the command ***Center*** all officers commanding platoons form on the left of their troop commanders with 3-yard intervals.

ESCORTS.

Purpose. Escorts are ceremonies for the purpose of:

(1) Rendering honors to a national or regimental standard.

(2) Escorting personages of high rank, civil or military, upon their arrival or departure from a military post or other place.

(3) Escorting the remains of a person entitled to the honor to the final resting place.

The first are called escorts to the standard, the second escorts of honor, and the third funeral escorts.

Escort to the Standard.

When a new national or regimental standard or both are issued to a regiment, they are received with the ceremony of Escort to the standard.

If only the regimental standard is received, the national standard does not attend the ceremony. If only the national standard is received, the regimental standard attends the ceremony, but remains at its post in the regiment during the actual reception of the national standard. If both standards are received, both standard bearers attend the ceremony and receive the standards.

The regiment being formed in line (single rank) or in line of masses (single rank), the regimental commander commands: 1. *Draw,* 2. *SABER.*

Upon an indication from the regimental commander, the band and assembled buglers, without playing, move straight to the front until clear of the line of squadron commanders, change direction to the right, and halt. The regimental commander then commands: 1. *Troop A (B, C, etc.),* 2. *ESCORT THE STANDARD.* The troop thus detailed as escort is previously designated by the regimental commander.

The designated troop is marched by its commander to the front, formed in column of platoons to the right, and halted in rear of the band. The standard bearers (or bearer) take position between the second and third platoons of the troop. The troop commander then commands: 1. *Escort,* 2. *Forward,* 3. *MARCH,* and marches the escort, without music, to the regimental commander's office, quarters, or other place where the standard is being temporarily kept. He then forms the escort in line facing the entrance and halts it, the band on the right, the standard bearers in the line of the file closers of the troop.

The senior lieutenant of the troop, the standard bearers, and a sergeant designated by the troop commander dismount in front of the regimental commander's quarters, their horses being held by the lieutenant's orderly. The standard bearer (or bearers), preceded by the lieutenant and followed by the sergeant, then enter the building and receive the standards (or standard).

When the standard bearers come out, followed by the lieutenant and the sergeant, they halt before the entrance, mount, and form in line, the lieutenant on the right, the sergeant on the left. The orderly returns to his post and the troop commander commands: 1. *Present,* 2. *SABER.* The escort presents saber and the assembled buglers sound To the Standard.

The troop commander commands: 1. *Carry,* 2. *SABER.* The lieutenant and the sergeant resume their posts. The troop commander forms his troop in column of platoons to the right and halts it. The standard bearers place themselves midway between the second and third platoons.

The troop commander gives the necessary commands for marching the escort back to the regiment. The band plays and the march is so conducted that when the escort arrives at about 100 yards in front of the right of the regiment the direction of march is parallel to the regimental front. When the standards arrive opposite their post in the regiment the escort is formed in line to the left, facing the regiment, and halted. As the line is formed the standard bearers, without halting, pass between the platoons and halt 10 yards in front of the regimental commander.

The standard bearers, being halted, the regimental commander faces the line and commands: 1. *Present,* 2. *SABER.* He then faces to the front and salutes. The buglers sound To the Standard. The guidons (and the regimental standard, if at its post in the regiment) salute. The regimental commander then faces about and commands: 1. *Carry,* 2. *SABER.* The standard bearers take their places in the standard guard.

During this presentation the escort presents and carries saber with the regiment at the regimental commander's command, after which the troop commander forms it in column and, preceded by the band, marches it to its place in line, passing around the left flank of the regiment. The band plays until the escort passes the left of the line, when it ceases to play and returns to its post on the right, passing in rear of the regiment.

The regiment is then usually marched in review at least once, after which the units are conducted to their stables and dismissed. The standard is escorted by the standard guard to the regimental commander's office, tent, or other place of permanent safe-keeping.

If the entire regiment is not available for the ceremony of escort to the standard, it may be executed by a squadron according to the above principles, the formation being in line (single rank).

Escort of Honor.

The organizations for an escort of honor are designated by the commanding officer.

An officer is appointed to attend the personage escorted and to bear such communication as he may desire to send to the commander of the escort.

The escort forms in line opposite the place where the personage is to present himself, the band, or assembled buglers, on the flank of the escort toward which it will march. On the appearance of the personage, the escort will be brought to attention and, when he has taken position from which to receive them, the honors due his rank will be rendered. Ordinarily the person so honored will inspect his escort.

When the escort has to be formed at a considerable distance from the point where the personage is to be received, as, for example, where a court-yard or wharf intervenes, a double line of troopers, with intervals, facing inward, may be posted from that point to the position of the escort. The troopers successively salute as the personage passes and are then relieved and join the escort.

The escort is then formed into column of platoons or fours and takes up the march, the personage and his staff or retinue taking position in rear of the column. Several officers or noncommissioned officers may be detailed to ride on either side of the personage's conveyance as a personal bodyguard. When the personage leaves the escort, line is formed and, when the personage has taken position from which to receive them, the same honors are rendered as on his arrival.

Funeral Escort.

Six pallbearers are selected, as far as practicable, from the grade of the deceased. If the deceased was a commissioned officer, the casket is borne by noncommissioned officers who are designated as casket bearers.

The standard is received by the escort, and the standard guard is dismissed in the prescribed manner.

At the funeral of a mounted officer or enlisted man, his horse, in mourning caparison, follows the caisson or hearse.

When the remains are escorted from the quarters of the deceased or other place to the church, before the funeral service, arms are presented and appropriate honors rendered upon receiving them and as they are borne into the church. Likewise, in cases where the remains are conducted to a crematory for cremation, the escort presents sabers upon receiving the remains and while

the remains are being borne into the crematory. During ceremonies at the crematory the firing of volleys and the sounding of taps are omitted. However, after cremation, if the ashes are interred with military honors, the escort is conducted in the usual manner and the usual procedure is adhered to at the grave. When services are held at the crematory the escort remains there during the services.

The escort is formed in line opposite the chapel or the quarters of the deceased, the band or assembled buglers on the flank toward which the column is to march.

Upon the appearance of the casket the commander of the escort commands: 1. *Present,* 2. *SABER,* and the band, if present, plays a dirge. When arms are presented at a funeral such special honors as may be due the deceased are rendered. At the conclusion of the music, sabers are brought to the carry. Other organizations are brought to attention by their commanders, who then salute.

The casket having been placed on the caisson or in the hearse, the escort is formed in column of platoons or fours. The procession is formed in the following order: (1) Band, (2) escort, (3) clergy, (4) casket and pallbearers (honorary pallbearers, when present, in column of files on each side of the casket, the leading member of each column opposite the front wheels of the caisson or hearse; active pallbearers in column of twos immediately in rear of casket), (5) mourners, (6) members of the former command of the deceased, (7) other officers and enlisted men, (8) distinguished persons, (9) delegations, (10) societies, (11) other civilians. Officers and enlisted men, with side arms, are in order of rank, seniors in front.

The escort marches slowly, the band, if present, playing a dirge. If the distance to the place of interment is considerable, the escort may march *At ease* until it approaches the burial ground, when it is brought to *Attention.*

Should the entrance to the cemetery prevent the caisson from accompanying the escort to the grave, the column is halted at the entrance long enough to take the casket from the caisson, when it is again put in march. Cavalry, when unable to enter the inclosure, turns out of the column, forms line facing it, and salutes as the remains pass. If appropriate the cavalry may be dismounted and marched to the cemetery on foot.

Prior to the funeral the necessary arrangements are made by the commander of the escort or a designated officer and the clergyman. The column having arrived opposite the grave, line is formed facing it. The casket is carried along the front of the escort to the grave. Sabers are presented. The band, if present, plays a dirge, and, the casket having been placed over the grave, sabers are brought to the carry. After the coffin has been lowered into the grave the command is brought to port saber and officers and men bow their heads during the reading of the service. The funeral service concluded, the commander causes the escort, if not already dismounted, to return saber and dismount. He then forms the escort at a convenient place opposite the grave and causes it to fire three volleys of blank cartridges over the grave, the muzzles of the rifles being elevated. When the escort is greater than a squadron, one squadron only is designated to dismount and fire the volleys. A bugler at the head of the grave sounds taps, which concludes the ceremony.

The escort is then formed in column, marched to the point of assembly, and dismissed. The band does not play until it has left the inclosure.

Funeral escorts, dismounted, are conducted according to the same principles. After the coffin has been placed over the grave the command is brought to order arms. After the coffin has been lowered into the grave the command is brought to parade rest, and officers and men bow their heads during the reading of the service.

In cases where the remains have been cremated the word "casket" is interpreted to include the receptacle containing the ashes of the deceased.

INSPECTIONS.

General Provisions. The purpose of inspections is to afford commanders the opportunity to examine minutely the state of completeness, serviceability, cleanliness, and general appearance of the personnel, animals, clothing, and equipment of their commands. Inspections should be held periodically in accordance with Army Regulations and whenever appropriate and practicable.

Inspections of units larger than the troop are frequently held in connection with reviews. In this case the inspection either precedes or follows the review, usually the latter.

The troop and squadron headquarters detachments, the regimental headquarters troop and regimental service troop, the brigade headquarters troop and machine-gun squadron usually appear at inspections, although they may be excused for special reasons by the unit commander. The inspections of the different units are described as though these special units were present.

If the unit commander is the inspecting officer of his unit, he proceeds immediately with its inspection. If the inspecting officer is other than the unit commander, the latter prepares his unit for inspection and awaits the arrival of the inspecting officer. If the inspecting officer is at some distance from the unit, its commander may give the command *Rest* and awaits the inspector's arrival. Upon the approach of the inspector the unit commander calls his unit to attention and salutes him. The inspector returns the salute and instructs the unit commander as to the kind of inspection he desires. Having been instructed as to the kind of inspection desired, the commander gives the necessary commands and, after being himself inspected, accompanies the inspector. The inspections of the various units are described for the case in which the inspecting officer is the unit commander.

In all cases the inspecting officer inspects while passing from right to left in front and from left to right in rear of any rank or subordinate unit being inspected.

Troop Inspection, Mounted.

The troop is habitually inspected, mounted, in Line (single rank).

The inspection is divided into two main parts. First, an inspection of the troop while mounted, during which the sabers of all individuals armed with this weapon are inspected and attention is paid to the general appearance of the personnel, animals, and equipment. Second, a more detailed inspection of the troop after dismounting, during which rifles, pistols, machine rifles, and the special loads carried on pack animals are inspected and special attention is paid to the clothing of the personnel, the individual equipment of the personnel and animals and the shoeing of the animals.

Either part of the inspection may be omitted when appropriate and desirable. On account of the inconvenience of inspecting articles dismounted while the troop is in a mounted formation, it is often preferable to inspect rifles, pistols, and machine rifles while in a dismounted formation, for example, before leaving the barracks.

The troop being in Line (single rank) at the halt, the troop commander takes post 12 yards in front of the right flank of the troop, faces to the left, draws saber, and commands: 1. *Prepare for inspection,* 2. ***MARCH.*** At the command ***MARCH*** posts are taken as follows:

(1) Platoon leaders of the rifle platoons move 6 yards straight to the front and halt, so as to be on line with the troop commander.

(2) The first sergeant, the bugler who accompanies the troop commander, and the guidon take post in that order from right to left on the right of the rank of the rifle platoons.

(3) The platoon sergeants and file closers of the rifle platoons rein back and halt so as to be 6 yards in rear of the rank of the rifle platoons.

(4) The platoon leader of the machine rifle platoon commands: 1. *Fours left,* 2. *MARCH,* 1. *Fours right,* 2. *MARCH,* and 1. *Platoon,* 2. *HALT,* so as to cause the machine rifle platoon to uncover the left rifle platoon by an interval of 3 yards. He then commands: 1. *Prepare for inspection,* 2. *MARCH.* At this command the front rank of each machine rifle squad moves forward and halts on line with the rank of rifle platoons and the rear ranks move forward and halt on line with the file closers of the rifle platoons. The intervals of 3 yards between machine rifle platoons are maintained.

(5) The leader of the machine rifle platoon takes post in front of his right squad and on line with the leaders of the rifle platoons.

(6) The platoon sergeant and file closers of the machine rifle platoon rein back so as to be 6 yards in rear of the rear ranks of the machine rifle platoon.

(7) In each machine rifle squad the corporal (gunner of gun crew No. 1) and the gunner of gun crew No. 2, following the corporal, turn individually to the left, pass through the interval on the left of their squad, execute *Column left about* in rear of the squad, move forward, and take posts on the left of the carriers of their respective gun crews.

(8) If the troop headquarters detachment is present the senior noncommissioned officer present with it causes it to take post 3 yards on the left of the machine rifle platoon and in a formation corresponding to that of the machine rifle platoon.

When all have gained their posts, each trooper dresses to the right, aligns himself, and, in the machine rifle platoon, covers off from head to rear, without command. The guidon is the base of the alignment. The troop commander causes any inaccuracies in alignment and cover to be corrected and resumes his post, facing to the front 12 yards in front of the guidon and on line with the platoon leaders.

The troop commander then faces to the left, commands: 1. *Draw,* 2. *SABER,* and cautions: *SABERS WILL BE INSPECTED.* He then inspects the platoon leaders. After being themselves inspected the platoon leaders turn about and remain at ease facing their platoons, unless directed by the troop commander to accompany him during the inspection.

As the troop commander approaches the right of the rank the first sergeant executes *Inspection saber.* The bugler raises his bugle (bell down) to the front and center of his body, turns it so as to present both sides to the troop commander, and then returns it to its former position. The guidon remains at carry guidon.

As the troop commander approaches the first two troopers of the rifle platoons they execute the first movement of *Inspection saber.* The first trooper, as the troop commander comes in front of him, makes a slight pause and executes the second movement of *Inspection saber.* As the troop commander moves in front of the second trooper the first trooper resumes the position of carry saber, the second trooper makes a slight pause and executes the second movement of *Inspection saber,* and the third trooper executes the first movement of *Inspection saber.* The troop commander then inspects the front rank of the machine rifle platoon (formed by gun crew No. 1 of the three machine rifle squads) and the front rank of the headquarters detachment. As the troop commander moves down the front of the rank the movements described above are executed successively by all troopers in the rank who are armed with the saber.

The troop commander then returns to the right and inspects the platoon sergeants and file closers of the rifle platoons, the rear rank of the machine rifle platoon (formed by gun crews No. 2 of the three machine rifle squads), and the rear rank of the headquarters detachment. The troopers armed with the saber execute *Inspection saber* as described above. The troop commander

then inspects the platoon sergeant and file closers of the machine rifle platoon. When the inspection of sabers has been completed the troop commander commands: 1. *Return,* 2. *SABER.*

The first part of the inspection being completed or dispensed with, the troop commander commands: 1. *Prepare to dismount,* 2. *DISMOUNT.* On the right of the rifle platoons the bugler rides forward to take the troop commander's horse, the first sergeant moves forward with the odd numbers, and the guidon stands fast. In each machine rifle squad the horseholders and the carriers move forward with the odd numbers. The inspection is made without forming ranks. The troop commander and the platoon leaders return saber and dismount. The troop commander's horse is held by the bugler, and each platoon leader's horse is held by his platoon orderly.

If the second part of the inspection is made by the troop commander, he inspects first the rifles throughout the whole troop, then the pistols of the whole troop, then the machine rifles of the machine rifle platoon, and last the loads carried on the pack animals of the troop headquarters detachment. During the inspection the platoon leaders face their respective platoons and stand at ease. The troop commander may require the platoon leaders to inspect their platoons and the first sergeant to inspect the troop headquarters detachment. When inspecting the troop headquarters detachment the first sergeant turns over his horse to a member of that detachment.

If rifles are to be inspected, the inspector cautions: *RIFLES WILL BE INSPECTED.* At this caution each trooper armed with the rifle or pistol takes the snaffle reins off his horse's neck, passes his right arm through the rein (bight, or loop, of the rein resting on the shoulder), and takes a position similar to Stand to horse, with the rifle at the right order. As the inspector approaches the right of the rank of odd numbers the first trooper on the right, if armed with the rifle, executes *Inspection arms.* The inspector takes the rifle, grasping it with his right hand just above the rear sight, the trooper dropping his hands to his sides. The inspector inspects the rifle and, with the hand and the rifle in the same position as in receiving it, hands it back to the trooper. The latter takes the rifle with the left hand at the balance, executes *Port arms,* and comes to the right order. As the inspector returns the rifle the next trooper on the left executes *Inspection arms,* and so on throughout the rank. Should the rifle be inspected without handling, each trooper executes *Port arms* and *Order arms* as soon as the inspector passes to the next trooper.

If pistols are to be inspected, the inspector cautions: *PISTOLS WILL BE INSPECTED.* At this caution each trooper armed with the rifle inserts his rifle in his scabbard. As the inspector approaches, the first two troopers on the right, if armed with the pistol, execute *Inspection pistol.* To inspect the pistol closely the inspector grasps it with his left hand, makes such examination as he desires, and hands the pistol back to the trooper in the same position as that in which the inspector took the weapon. The trooper takes the pistol with the right hand as in inspection pistol and executes *Return pistol.* As the inspector hands the pistol back to the first trooper and comes in front of the second trooper, the third trooper executes *Inspection pistol,* and so on throughout the rank. Should the pistols be inspected without handling, each trooper executes *Return pistol* as the inspector passes to the next trooper.

If machine rifles are to be inspected, the inspector cautions: *MACHINE RIFLES WILL BE INSPECTED.* Each gunner in the machine rifle platoon passes his reins to his assistant gunner. The gunner unpacks the machine rifle and takes position 1 yard in front of the pack animal's head at attention with the machine rifle at the right order. The inspector inspects the machine rifle. He may, for this purpose, require the gunner to exhibit the working parts of the machine rifle or he may himself take the machine rifle in his hands for a more minute examination. As soon as the inspector has passed

him each gunner repacks the machine rifle on the pack animal, returns to his own mount, and takes a position similar to stand to horse, with his right arm through the snaffle reins, the bight of the reins resting on his shoulder.

If the loads carried on the pack animals of the troop headquarters detachment are to be inspected, the inspector cautions: *LOADS WILL BE INSPECTED.* The senior noncommissioned officer present with the detachment causes the loads to be unpacked and displayed as may be directed by the inspector. As soon as the inspector has completed his inspection of the loads they are repacked on the pack animals.

The inspection being completed, the troop commander commands: 1. *Prepare to mount,* 2. *MOUNT,* and 3. *FORM RANKS.* At the first command the troopers replace their snaffle reins on their horses' necks and, if they have not already done so, replace their rifles in their scabbards. At the second command all mount. At the third command ranks are reformed, the rear rank of each squad of the machine rifle platoon moving forward to its original distance of 4 feet behind the front rank, the gunners and assistant gunners resuming their proper posts in front of their leading fours. The troop commander then commands *POSTS,* at which command all troopers out of ranks resume their normal posts. The troop is then led from the field by some appropriate command, and the machine rifle platoon and the troop headquarters detachment resume their normal positions in the troop as it moves out.

Troop Inspection, Dismounted.

The troop is habitually inspected, dismounted, in Line (single rank), except that the machine rifle platoon forms in single rank on the left of the third rifle platoon, without interval, and the troop headquarters detachment forms in single rank on the left of the machine rifle platoon without interval. The gunners of each machine rifle squad are on the right of their respective gun crews. The guidon is on the right of the rank.

The inspection is analogous to troop inspection, mounted. At the command: 1. *Prepare for inspection,* 2. *MARCH,* officers and others whose posts are 3 yards in front of the rank do not change posts. The first sergeant and one bugler take posts as in mounted inspection. File closers stand fast.

Rifles and machine rifles are inspected first. If pistols are to be inspected, rifles are stacked and the troop is marched backward 2 yards prior to the inspection of pistols. After the inspection of pistols the rank is moved forward and stacks are broken. The troop commander commands *POSTS* and the troop is dismissed.

When the troop is dismissed, arms are put away, equipment is removed and, if quarters are to be inspected, the troopers stand uncovered near their respective bunks. In camp they stand covered, but without equipment, in front of their tents.

If equipment is to be inspected in quarters or camp, each trooper arranges the prescribed articles on his bunk or in front of his half of his shelter tent, as prescribed in Chapter XVII, Cavalry Drill.

The troop commander, usually accompanied by the platoon leaders, then inspects the quarters or camp. The first sergeant precedes the troop commander and calls the troopers to attention on entering each squad room or approaching the tents. The men stand at attention but do not salute.

Squadron Inspection, Mounted.

The squadron is habitually inspected, mounted, in Column of troops (single rank).

The squadron being in column of troops (single rank) at the halt, the squadron commander and staff draw saber. The squadron commander turns about, the staff standing fast, and commands: 1. *Prepare for inspection,* 2.

MARCH. The staff officers, other than the adjutant, move up on the line with the adjutant and halt on his left, the sergeant major and the bugler standing fast. Each troop commander and the noncommissioned officer commanding the squadron headquarters detachment prepares his unit for inspection, the headquarters detachment in the formation prescribed by the squadron commander. Each unit commander takes his post.

The squadron commander inspects his staff and then commands: *REST.* After commanding *Rest,* he returns saber and proceeds to inspect the units of his squadron in turn. The staff returns saber with the squadron commander and accompanies him during the inspection. Each troop commander and the commander of the headquarters detachment, as the squadron commander approaches, calls his unit to attention and, without saluting, gives the necessary commands to carry out the inspection directed by the squadron commander. After being himself inspected he accompanies the squadron commander on the latter's right.

As the inspection of each unit is completed the squadron commander causes it to be marched off and dismissed, or he directs it to rest until the completion of the inspection of the squadron, which he then conducts as a unit in any manner he may desire.

Squadron Inspection, Dismounted.

The squadron is not inspected, dismounted, as a unit. If the troops of the squadron are to be inspected, dismounted, the squadron commander, accompanied by his staff, usually makes an inspection of each troop in turn.

At inspection of quarters or camp the squadron commander is accompanied by his staff or by all or such of the officers of the squadron as he may designate.

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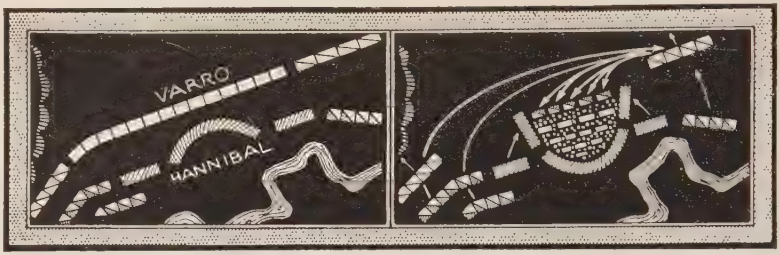

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